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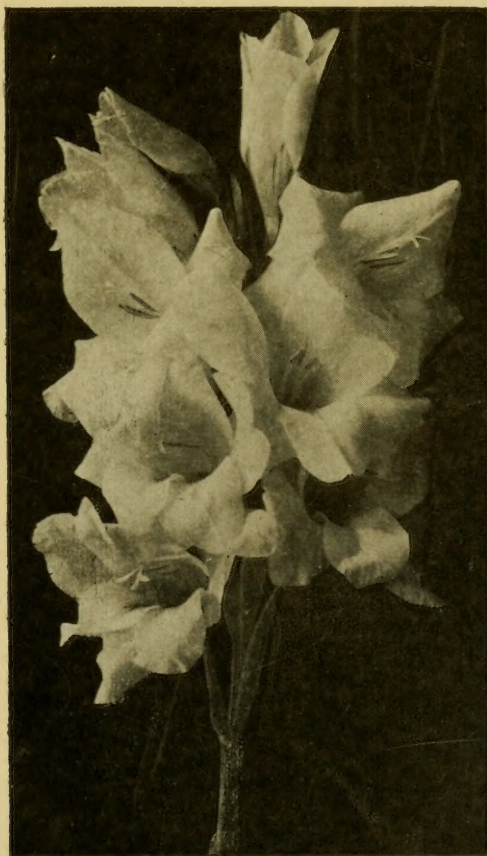
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A. R. Mann, Acting Director of Extension Service

Gladiolus Studies—I

Botany, History, and Evolution of the Gladiolus

Alvin C. Beal



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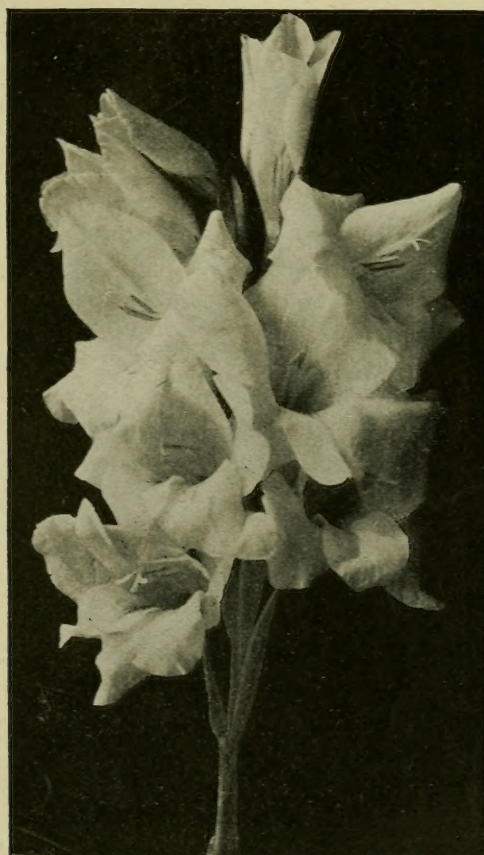
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PREFACE

The American Gladiolus Society was organized at Boston, Massachusetts, on the 27th of May, 1910, and the first meeting was held at Rochester, New York, in August of the same year. Among the objects of the society were the following: "to establish a standard nomenclature; to test out new varieties and give them the recognition they deserve; and to disseminate information relating to this flower."

Through a cooperative arrangement between the society and Professor L. B. Judson, representing the Department of Horticulture at Cornell University, the trial grounds of the society were located at Ithaca, New York. On the resignation of Professor Judson, who was in charge of the trials, the direction of the tests devolved on Professor John Craig, who placed George J. Burt in charge of the detail work. Mr. Burt made the notes in the field during 1911, and in the greenhouse in the winter of 1911-12. Since March, 1912, A. C. Hottes has had charge of the trials, at first under the direction of Professor Craig and later under the supervision of the writer. On October 1, 1913, the Department of Floriculture at Cornell University was organized, and the gladiolus trials were continued as a part of the investigative work of the department.

All the varieties included in these studies have been tested for more than one season, and thus a more satisfactory estimate of the merits of each variety has been obtained than would otherwise have been possible. If the work has seemed prolonged, it is due in part to the unusual and unavoidable changes in its supervision, but in larger measure to the difficulty encountered in procuring stock of varieties suspected of being synonymous with the varieties already known.

The thanks of the American Gladiolus Society and of the Department of Floriculture at Cornell are due to all who have assisted in the work either by the donation of corms or by furnishing information. Those connected with the trials are indebted also to the present and the former officers of the society for their cooperation and support.

The present bulletin is intended to trace the development of the gladiolus up to the present time. Succeeding bulletins will treat of its culture and of the varieties that have been tested in the Craig gardens of the New York State College of Agriculture at Cornell University.

ALVIN C. BEAL,

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Chairman Nomenclature Committee, American Gladiolus
Society.*

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GLADIOLUS GANDAVENSIS

ADAPTED FROM VAN HOUTTE'S FLORE DES SERRES ET
DES JARDINS DE L'EUROPE

GLADIOLUS STUDIES—I

BOTANY, HISTORY, AND EVOLUTION OF THE GLADIOLUS

ALVIN C. BEAL

And the small wild pinks from tender
Feather-grasses peep at us
While above them burns on slender
Stems the red gladiolus.— Lord Lytton.

Among the summer garden flowers, few, if any, have made more rapid progress in popular favor in recent years than the gladiolus. The showy character of the tall spikes of flowers, their long period of bloom and comparative ease of culture, render them popular garden subjects. Popular as they now are, they deserve to be better known until they are found in every garden or dooryard where flowers are grown.

Although gladiolus blossoms have been sold on some markets for many years, it appears that only during the last fifteen years have the merits of this plant as a summer cut flower come to be known and appreciated by florists and the flower-buying public. At the present time, gladioli rank among the first of the summer cut flowers for market, their keeping qualities rendering them very satisfactory for table and other decorations.

The name *gladiolus* is variously pronounced and from time to time during the last fifty years its pronunciation has occasioned some controversy in the horticultural press. The word is a Latin diminutive of *gladius* (a sword) and means *little sword*. If the pronunciation follows the Latin rule, according to which derivative endings in *olus* have a short penultimate syllable, the *o* is short. Furthermore, according to the rule for Latin pronunciation, a vowel is regularly short before another vowel, which makes the *i* short. Latin dictionaries give the first vowel in *gladius* and *gladiolus* as short. The word should therefore be marked thus: glădiölus.¹ The rule for accent is as follows: "Words of more than two syllables are accented upon the penult (next to the last) if that is a long syllable, otherwise upon the antepenult (second from the last)."² *Gladiolus*, having a short penult syllable, *o*, would have the accent on the *i*, or antepenult syllable, thus: glă-di'-ö-lus. The plural is properly *gladioli*, although the English sometimes write it *gladioluses*.

¹ Latin pronunciation

ă as in *Cuba*
i as in *cigar*
ö as in *obey*

English pronunciation

ă as in *fat*
i as in *pin*
ö as in *not*

² Bennett, C. E. A Latin grammar. Revised edition, page 5. 1908.

BOTANY OF THE GLADIOLUS

The gladioli are cormaceous plants belonging to the family Iridaceae, which embraces more than thirty genera of ornamental plants in American culture, including *Crocus*, *Ixia*, *Freesia*, and *Iris*. *Crocus* and *Iris* are distinguished at once from *Gladiolus*, *Ixia*, and *Freesia* by the fact that they normally have more than one flower to a spathe. *Ixia* has equilateral stamens and a regular perianth, while in *Freesia*, *Lapeyrousia*, and

Watsonia the style branches are bifid and the stamens unilateral. Botanists have had some difficulty in determining whether various plants of this section of the iris family belong to the genus *Gladiolus*, *Lapeyrousia*, *Babiana*, or *Antholyza*. *Babiana* is distinguished by its very hairy, plaited leaves, while *Antholyza* has the tube suddenly dilated at the middle instead of gradually widening as in the genus *Gladiolus*.

The corms of the different species of *Gladiolus* vary considerably in size, shape, and color. Usually the body of the corm is white, yellowish, or red, and it is covered with a brown skin. The height of the plants varies considerably, ranging from a few inches to four feet or more. The leaves, which contribute so much to the beauty of the plant, vary in length, breadth, and color,



FIG. 3. *GLADIOLUS SEGETUM*

and also in number, some of the species having only two leaves while others have from four to six. The leaves are graceful, often bending backward toward their points as if to give greater prominence to the stem which arises out of them as they recurve from either side. The flowers form a spike on the summit of the stem, in some species arranged on one side of the stem only, in others on opposite sides. In the more modern cultivated varieties the flowers open so widely as to form a spike of matchless beauty.

HISTORY OF THE GENUS

The botanists and herbalists of the sixteenth and early seventeenth centuries, dealing only with the plants of Europe, did not give much attention to gladioli. Therefore little is found concerning this plant in the writings of Cordus, Clusius, the Bauhins, Dodoens, Cæsalpinus, and Lobelius, and it is not until after 1750 that one finds numerous additions to the number of gladioli. The history of the plant is as follows:

Gerarde (1597)³ mentions the following:

G. Narbonensis, French corn flag. Flowers purple and arranged on both sides of the stalk.

G. Italicus, Italian corn flag. Flowers purple, similar in form to the preceding but arranged on one side of the stalk. A variety of this has pale-colored flowers.

The other forms mentioned—*G. Lacustris*, water sword-flag (mentioned in second edition, page 105), and *G. palustris*, water gladiole—were plants belonging to different genera.

Gerarde says further:

These kinds of corne flags growe in meadowes, and in careable grounds among corne in many places of Italy, as also in the parts of Fraunce bordering thereunto. Neither are the fields of Austria and Moravia without them, as Cordus writeth. We have great plentie of them in our London gardens, especially for the garnishing and decking them up, with their seemely flowers.⁴

The gladiolus flowered from May to the end of June.

Bradley (1728) describes six forms of gladioli:

G. Narbonensis, French corn flag. Flowers reddish purple and arranged on one side of the spike.



FIG. 4. FLOWER OF GLADIOLUS SEGETUM

³ Dates in parenthesis refer to bibliography, page 163.

⁴ It may be noted that Gerarde, in giving the various names of this plant, says that "Valerius Cordus calleth corne flag *Victorialis fœmina*; others *Victorialis rotunda*: In the Germanic toong, *Seigwurtz*."

G. flore rubente, Blush corn flag. Resembles the French corn-flag except that it has pale red flowers.

G. flore albo, white corn flag. Similar to the last except that the flowers are white.

G. purpureus minor, small purple corn flag. Has smaller leaves, stalk, and flowers than the French corn-flag, which it otherwise resembles. The flowers are arranged on one side of the spike.

G. italicus, Italian corn flag. Flowers a little darker than those of the French corn-flag, and arranged on both sides of the spike.

G. Byzantinus, corn flag of Constantinople. Flowers deeper red in color and larger, and with larger roots and leaves, than the French corn flag, and arranged on one side of the spike. Blooms after the other species are past. Plant more tender than the preceding.

Breyne (1739b) describes *Gladiolus tristem*, *G. angustem*, *G. plicatum*, and *G. puniceum* Lam. The last-named is considered a synonym of *G. villosus* Ker. *G. angustus* was described in *Hortus Cliffortianus* under the name *G. foliis linearibus*.

Linnæus, in his *Hortus Cliffortianus* (1737), describes the following species and gives references to the names of these in the writings of other botanists:

1. *Gladiolus foliis ensiformibus*.

Gladiolus, floribus uno versu dispositis, major. Bauh. pin. 41.

Gladiolus sive Xyphion. Bauh. hist. 2. p. 701.

Victorialis rotunda. Besl. eyst. 66. f. 2.

Gladiolus, floribus uno versu dispositis, major & procerior, flore purpureo-rubente. Tournef. inst. 365, Boerh. lugdb. 2. p. 365.

Gladiolus. Riv. mon. 163.

Gladiolus, floribus uno versu dispositis, major & procerior, flore candicante. Tournef. inst. 365.

Gladiolus, floribus uno versu dispositis, minor & humilior. Tournef. inst. 365.

Gladiolus, floribus uno versu dispositis, minor. Tournef. inst. 366.

Gladiolus carnei coloris. Tournef. inst. 365. Boerh. lugdb. 2. p. 127.

Gladiolus utrinque floridus. Bauh. pin. 41. Boerh. lugdb. 2. p. 126.

Gladiolus utrinque floriferus. Dod. pempt. 209.

Gladiolus utrinque floridus, flore rubro. Tournef. inst. 366.

Gladiolus utrinque floridus, flore albo. Tournef. inst. 366. Boerh. lugdb. 2. p. 127. (Native of Italy and around Monspelium.)

2. *Gladiolus foliis linearibus*. Vid. Tab.

Gladiolus africanus, folio gramineo, floribus carneis, macula rhomboidea purpurea inscriptis, uno versu positis. Boerh. lugdb. 2. p. 127.

(Native of Africa.)

In *Species Plantarum*, Linnæus (1753 b) describes the following species:

communis. 1. *Gladiolus foliis ensiformibus*, floribus distantibus.

Gladiolus foliis ensiformibus. Hort. cliff. 20. Hort. ups. 16.

Gladiolus caule simplicissimo, foliis ensiformibus. Roy. lugdb. 19.

Gladiolus floribus uno versu dispositis. Bauh. pin. 41.

Habitat in Europa australi.

imbricatus. 2. *Gladiolus foliis ensiformibus*, floribus imbricatis.

Habitat in Russia citeriore.

Flores parvi versus unum latus imbricati.

spicatus. [Not at present included in the genus *Gladiolus*. Is *Watsonia spicata*.]

angustus. 4. *Gladiolus foliis linearibus*, floribus distantibus, corollarum tubo limbis longiore.

Gladiolus caule simplicissimo, foliis linearibus, floribus alternis.

Roy. lugdb. 19.

Gladiolus foliis linearibus. Hort. cliff. 20. *t. 6.

Habitat in Africa.

- ramosus*. [Not at present included in genus *Gladiolus*. Is *Melasphaerula graminea*.]
capitatus. [Not at present included in genus *Gladiolus*. Is *Aristea capitata*.]

The second edition (1762) includes in addition to the above:

- alatus*. 4. *Gladiolus foliis ensiformibus, petalis lateralibus latissimis*. *Amœn. acad.* 6 *afric* 2.*
Sisyrinchium viperarum. *Pluk. phyt.* 224. f. 8.
Habitat ad Cap. b. spei.
plicatus. [Now included in genus *Babiana* as *B. stricta*.]
tristis. 6. *Gladiolus foliis lineari-cruciatis, corollis campanulatis*.
Gladiolus bifolius & biflorus, foliis quadrangulis. *Trew. ehret. t.* 39.
Habitat in Æthiopia.
alopecuroides. [Now known as *Watsonia plantaginea*.]

In the *Encyclopédie Botanique* (Lamarck, 1786) twenty-six species are described, but in addition to the species of Linnaeus only the following are now recognized: *G. bimaculatus* [= *involutus*]; *G. puniceus* [= *villosus* (?)]; *G. luteus* Lam.; *G. montanus* Linn; and *G. recurvus*. The other species are now included in *Babiana*, *Ixia*, *Lapeyrousia*, *Melasphaerula*, and *Watsonia*.

John Bellenden Gawler (who later changed his name to Ker, also given in the bibliography) was the most prominent investigator working on the order Iridaceae during the first thirty or forty years of the nineteenth century. He published (Gawler, 1805) a complete synopsis of all the twenty-six genera, with a list of the two hundred and twenty-five species then known. In this paper many genera now recognized were for the first time named and fully characterized. Among these are *Anomatheca*, *Aristea*, *Babiana*, *Geissorhiza*, *Hesperantha*, *Marica*, *Melasphaerula*, *Morphixia*, *Pardanthus*, *Sparaxis*, and *Tritonia*. The following list of species of *Gladiolus* is given:⁵

- Cunonia* (Antholyza) B. M. t. 343.
Watsonius, B. M. t. 450.
Quadrangularis, B. M. t. 567 [Baker places this in Antholyza].
Namaquensis, B. M. t. 592 [Baker gives this as a variety of *G. alatus*].
Alatus, B. M. t. 586.
Viridis, Hort. Kew. 3 p. 481 [Ker later places this in *Tritonia*].
Viperatus, B. M. t. 688 [Baker gives this as a synonym of *G. orchidiflorus* Andr.].
Permeabilis, De la Roche Diss. 27.
Versicolor, B. M. t. 556 [Baker places this under *G. grandis* Thunb.].
Tristis, B. M. t. 272.
Hyalinus, Jacq. Ic. var. 2. t. 242.
Tenellus, Jacq. Ic. var. 2. t. 248. coll. 4. t. 3. f. 1.
Setifolius, Thunb. Diss. de Glad. 18.
Gracilis, B. M. t. 562.
Carinatus, B. M. t. 578 [Baker places this under *G. recurvus* Linn.].
Hirsutus [B. M. plates cited are not figures of this species].
Flexuosus, Thunb. Diss. de Glad. t. 1. f. 1 [Baker places this species in the genus *Acidanthera*].

⁵ Citations to plates that were not later confirmed by Baker have been omitted, so that persons desiring to look up the species of *Gladiolus* known one hundred years ago may do so without error. The comments in brackets after some of the species, except in the first case, were added by the writer from an examination of later works on the subject.

- Carneus, B. M. t. 591 [Baker regards this as a synonym of var. *ventricosus* Lam. of *G. cuspidatus* Jacq.].
 Cuspidatus, B. M. t. 582.
 Blandus, B. M. t. 625, 645, 648.
 Angustus, B. M. t. 602.
 Undulatus, B. M. t. 647.
 Floribundus, B. M. t. 610.
 Milleri, B. M. t. 632.
 Cardinalis, B. M. t. 135.
 Byzantinus, B. M. tab. nondum evulgata (347).
 Communis, B. M. t. 86.
 Segetum, B. M. t. 719.

For many years Ker added to the knowledge of Iridaceae through his contributions to *Curtis's Botanical Magazine*. Later he joined Sydenham Edwards in establishing the *Botanical Register*. He published separately at Brussels in 1827 a paper entitled *Genera Iridearum*, in which he gives a synoptic list of a little over three hundred species classified in thirty genera. Under *Gladiolus* he recognizes the following in addition to those named above: *speciosus* Thunb.; *merianellus* Thunb.; *villosus* Ker; *aphyllus* Ker; *brevifolius* Jacq.; *laccis* Thunb.; *Breynianus* Ker; *suaveolens* Ker; *elongatus* Thunb.; *trichonemifolius* Ker; *inflatus* Thunb.; *recurvus* Linn.; *trimaculatus* Lam.; *vomerulus* Ker; *involutus* De la Roche; *edulis* Ker; *imbricatus* Linn.; *luteus* Lam. Altogether he gives a synoptic list of forty-six species of *Gladiolus*, with a list of eight additional names of species doubtfully placed. With the publication of this paper the labors of this botanist on the order appear to have ceased.

After the death of Dean Herbert in 1847 there was no recognized authority on the Iridaceae for about thirty years. Dr. F. W. Klatt, of Hamburg, between 1863 and 1895 published several papers which collectively give a fairly good synopsis of the order.

In 1878 John Gilbert Baker published his *Systema Iridacearum* in the *Journal of the Linnean Society*, in which he classified about seven hundred species in sixty-five genera. His *Handbook of the Iridææ* appeared in 1892, and in this are fully described nine hundred and twenty-six species belonging to fifty-seven genera. The following generic description and list of subgenera of *Gladiolus* are taken from the latter work. No key is given to the one hundred and thirty-two species described, but the number of species included under each subgenus is given.

GLADIOLUS Linn.

Perianth-tube usually funnel-shaped; segments of the limb more or less unequal in shape and direction, oblong, spathulate or unguiculate, the upper of the outer row generally the largest. *Stamens* inserted at the throat of the perianth-tube, contiguous and arching; filaments short, free; anthers linear, basifixed. *Ovary* 3-celled; ovules many, superposed; style long, arcuate; stigmas cuneate, entire. *Capsule* oblong, loculicidally 3-celled. *Seeds* globose or discoid, sometimes distinctly winged.—*Rootstock* a tunicated corm. Produced *leaves* distichous, superposed on the stem, generally linear or ensiform. *Inflorescence* spicate; flowers 1 to a spathe, sessile; spathe-valves linear or lanceolate. *Flowers* very various in size and colour.

Subgenus EUGLADIOLUS.—Perianth-tube funnel-shaped; segments not distinctly unguiculate.

Species of Europe and Western Asia.

Seeds flat, winged.....Sp. 1-5.

Seeds globose.....Sp. 6-8.

Seeds unknown.....Sp. 9-15.

Species of the Cape and Tropical Africa.

Leaves subterete or linear.

Perianth-segments acute.....Sp. 16-31.

Perianth-segments obtuse.....Sp. 32-72.

Leaves ensiform.....Sp. 73-109.

Subgenus II. HEBEA.—Perianth-tube short; segments distinctly unguiculate. Spathes large.....Sp. 110-124.

Subgenus III. SCHWEIGGERA.—Flowers small; segments distinctly unguiculate. Spathes small.....Sp. 125-126.

Subgenus IV. HOMOGLOSSUM.—Perianth-tube like that of a *Watsonia*; segments subequal.....Sp. 127-132.

The following key to eighty-one of the Cape species appears in *Flora Capensis* (Baker, 1896-97). The European, Asiatic, and central African species are of course not included.

Subgenus I. EUGLADIOLUS. Spathe-valves large, green, lanceolate; perianth-segments not distinctly unguiculate.

A. Leaves terete or linear:

Perianth-segments acute:

Perianth-tube $1\frac{1}{2}$ -2 in. long:

Leaves subterete:

Perianth-segments long and gradually pointed. (1) *grandis*.

Perianth-segments shortly pointed:

Perianth pale or slightly flushed with dark lilac.....(2) *tristis*.

Perianth dark lilac.....(3) *recurvus*.

Leaves linear:

Segments with a short cusp.....(4) *angustus*.

Segments with a long cusp.....(5) *cuspidatus*.

Perianth-tube about an inch long:

Leaves subterete:

Flowers horizontal:

Flowers pink.....(6) *hastatus*.

Flowers blue-lilac.....(7) *gracilis*.

Flowers yellowish.....(8) *tenellus*.

Flowers suberect.....(9) *trichonemifolius*.

Leaves linear:

Flowers lilac.....(10) *vomerulus*.

Flowers yellowish.....(11) *strictus*.

Whole flower not above an inch long:

Leaf with scarcely any free point.....(12) *pubescens*.

Leaf slender, subterete.....(13) *lambda*.

Leaf linear, long.....(14) *rachidiflorus*.

Perianth-segments obtuse or obscurely cuspidate:

/ Stem-leaves with only very short, free points:

Sheaths glabrous:

Flowers pink or lilac:

Perianth-tube half as long as the segments.. (15) *microphyllus*.

Perianth-tube as long as the segments.....(16) *brevifolius*.

Perianth-tube longer than the segments.....(17) *tabularis*.

Flower-segments white with a red keel.....(18) *inandensis*

Sheaths pilose.....(19) *Woodii*.

Stem-leaves with long, free points:

Leaves subulate or very narrow:

Flowers erect or suberect:

- Segments shorter than the tube..... (20) *tenuis*.
- Segments equalling the tube..... (21) *debilis*.
- Segments rather longer than the tube..... (22) *Bolusii*.
- Segments 2-3 times the length of the tube:
- Flowers bright lilac..... (23) *biflorus*.
- Flowers pale yellow..... (24) *erectiflorus*.

Flowers horizontal with a curved tube:

Flowers 1-4 in a spike:

Upper segments $\frac{1}{2}$ - $\frac{1}{3}$ in. broad:

- Flowers white..... (25) *cochleatus*.
- Flowers bright red..... (26) *Rogersii*.
- Flowers pink..... (27) *Pappei*.

Upper segments $\frac{1}{2}$ - $\frac{3}{4}$ in. broad:

- Corm-tunics of fine fibres..... (28) *inflatus*.
- Corm-tunics of wiry strands..... (29) *spathaceus*.

Flowers many in a spike..... (30) *involutus*.

Leaves linear:

Leaf-sheaths glabrous:

- Perianth-tube $1\frac{1}{2}$ in. long..... (31) *hyalinus*.
- Perianth-tube 1 in. long..... (32) *vittatus*.
- Perianth-tube $\frac{3}{4}$ in. long..... (33) *striatus*.
- Perianth tube $\frac{1}{2}$ - $\frac{1}{3}$ in. long:

Segments half as long as the tube..... (34) *paludosus*.

Segments twice the length of the tube:

Produced leaves 2..... (35) *niveni*.

Produced leaves 3-4:

Stamens half as long as limb..... (36) *punctatus*.

Stamens as long as the lower segments (37) *brachyscyphus*.

Leaf-sheaths hairy..... (38) *villosus*.

B. Leaves ensiform.

Parviflora. Perianth-tube under an inch long.

Spikes equilateral; flowers very numerous:

Flowers red:

Perianth-tube $\frac{1}{3}$ in. long..... (39) *crassifolius*.

Perianth-tube $\frac{1}{4}$ in. long..... (40) *Elliotii*.

Flowers yellow:

Stem pubescent..... (41) *Ludwigii*.

Stem villose..... (42) *sericeo-villosus*.

Spikes secund; flowers fewer:

Flowers yellow..... (43) *ochroleucus*

Flowers red:

Upper segments $\frac{1}{2}$ in. broad:

Perianth-tube $\frac{1}{2}$ in. long..... (44) *Kirkii*.

Perianth-tube $\frac{3}{4}$ in. long..... (45) *Eckloni*.

Upper segments $\frac{3}{4}$ in. broad; two inner lower with a large dark blotch:

Flowers yellow..... (46) *purpureo-auratus*.

Flowers purple:

Outer spathe-valve $1-1\frac{1}{2}$ in. long..... (47) *Papilio*.

Outer spathe-valve $1\frac{1}{2}$ -2 in. long..... (48) *Rehmanni*.

Blandi. Perianth-tube 1-2 in. long; flowers white or pale red.

Segments obovate, obscurely pointed:

Sheaths and leaves hairy:

Segments as long as the tube..... (49) *hirsutus*.

Segments shorter than the tube..... (50) *salmonaeus*.

Sheaths and leaves glabrous:

Perianth-tube $1-1\frac{1}{4}$ in. long..... (51) *scaphochlamys*.

Perianth-tube $1\frac{1}{2}$ -2 in. long..... (52) *floribundus*.

Segments oblong, distinctly pointed:

Perianth-tube curved:

Segments $\frac{1}{2}$ – $\frac{1}{2}$ in. broad. (53) oppositiflorus.

Segments $\frac{1}{2}$ –1 in. broad. (54) blandus.

Perianth-tube nearly straight:

Segments nearly concolorous. (55) Milleri.

Segments with a bright red central band. (56) undulatus.

Cardinales. Flowers large, bright red, with a nearly straight tube, and upper segments not distinctly hooded.

Segments subequal, shorter than the tube. (57) Macowani.

Upper segments as long as the tube. (58) Adlami.

Segments unequal, longer than the tube:

Upper segments $\frac{3}{4}$ –1 in. broad. (59) cardinalis.

Upper segments obovate, 1–1 $\frac{1}{2}$ in. broad:

Lower bracts 1 $\frac{1}{2}$ –2 in. long. (60) splendens.

Lower bracts 3–6 in. long. (61) cruentus.

Dracocephali. Flowers large, with a much-curved tube and upper segments hooded.

Flowers dull-coloured:

Leaves $\frac{3}{4}$ –1 in. broad. (62) dracocephalus.

Leaves 1–2 in. broad. (63) platyphyllus.

Flowers bright red:

Limb shorter than the tube. (64) psittacinus.

Limb as long as the tube:

Perianth 2–3 in. long. (65) Leichtlinii.

Perianth 4 in. long. (66) Tysoni.

Limb longer than the tube. (67) Saundersii.

Flowers bright yellow. (68) aurantiacus.

Subgenus II. *HEBEA*. Spathe-valves large, green, oblong-lanceolate. Perianth-segments all with a narrow claw.

Side-segments about $\frac{1}{2}$ in. broad:

Flowers red:

Leaves with many close equal ribs. (69) alatus.

Leaves with only a thickened midrib and edge. (70) spathulatus.

Flowers greenish-yellow. (71) orchidiflorus.

Side-segments about $\frac{1}{3}$ in. broad:

Flowers dull reddish. (72) pulchellus.

Flowers yellowish. (73) bicolor.

Side-segments about $\frac{1}{4}$ in. broad:

Stems stout; flowers few to a spike. (74) arcuatus.

Stems slender; flowers many to a spike:

Segments cuspidate:

Upper segments 1–1 $\frac{1}{4}$ in. long. (75) formosus.

Upper segments $\frac{3}{4}$ –1 in. long:

Tunics of fine parallel fibres. (76) edulis.

Tunics lacerated from the base. (77) Scullyi.

Segments not cuspidate:

Claw of upper segments very narrow. (78) Dregei.

Claw of upper segments not very narrow. (79) permeabilis.

Subgenus III. *SCHWEIGGERA*. Spathe-valves small, brown, rigid. Segments all with a distinct slender claw and small blade.

Perianth-limb $\frac{1}{2}$ – $\frac{3}{4}$ in. long. (80) arenarius.

Perianth-limb 1 in. long. (81) montanus.

Of the Cape species included in the foregoing key, *Gladiolus erectiflorus*, *G. inflatus*, and *G. platyphyllus* are new species and were not described in Baker's *Handbook of the Iridæ*.

Many species from other parts of the world are described in the last-named work. The fifteen European and Asiatic species are named on

pages 199 to 202. The following are from tropical Africa: *andongensis* Welw. ex Baker; *angolensis* Welw. ex Baker; *atropurpureus* Baker; *benguellensis* Baker; *brachyandrus* Baker; *brevicaulis* Baker; *Buchanani* Baker; *Buchtneri* Pax; *coeruleus* Baker; *corneus* Oliv.; *decoratus* Baker; *Grantii* Baker; *gregarius* Welw.; *Hanningtoni* Baker; *kilimandscharicus*



FIG. 5. *GLADIOLUS LEICHTLINII* BAKER

Africa and elsewhere have been described. Some of these have been published by Mr. Baker and are therefore new species. Others have been described by persons who have not made any monographic studies on the genus. It is not improbable that some of them are forms of the apparently very variable *G. Quartinianus* A. Rich or of other known species. A few new specific names have appeared among the European

Pax; *laxiflorus* Baker; *luridus* Welw.; *Melleri* Baker; *micranthus* Baker; *multiflorus* Baker; *newii* Baker; *Oatesii* Rolfe; *pauciflorus* Baker; *primulinus* Baker; *Quartinianus* A. Rich.; *splendens* Baker; *sulphureus* Baker; *Thomsoni* Baker; *unguiculatus* Baker; *Welwitschii* Baker; *zambesiacus* Baker. From central Madagascar are reported *G. Garnieri* Klatt and *G. luteus* Lam. Further study has resulted in the discovery that *G. andongensis* Welw. ex Baker, *G. angolensis* Welw. ex Baker, *G. kilimandscharicus* Pax, *G. newii* Baker, *G. primulinus* Baker, and *G. Welwitschii* Baker, are really synonyms of *G. Quartinianus* A. Rich.

Since the publication of the *Handbook of the Irideæ* and the *Flora Capensis*, a number of species of *Gladiolus* from tropical

species, but it is not probable that the supposed new species of Jordan are more than varietal forms of species already known.

The following is a complete list of the supposed new species from Europe and Africa:

- | | |
|-----------------------------------|-------------------------------------|
| <i>affinis</i> De Wild. | <i>macrophlebius</i> Baker, 1898 |
| <i>antunesii</i> Baker, 1897 | <i>malangensis</i> Baker |
| <i>aphanophyllus</i> Baker, 1898 | <i>Masoniorum</i> Wright, 1910 |
| <i>Arnoldianus</i> De Wild. | <i>massoni</i> Klatt, 1893 |
| <i>arvaticus</i> Jord. | <i>masukuensis</i> Baker, 1897 |
| <i>atrorubens</i> Brown, 1914 | <i>micranthus</i> Baker |
| <i>Bakeri</i> Klatt, 1893 | <i>microsiphon</i> Baker |
| <i>Baumi</i> Harms | <i>mirus</i> Vaupel, 1912 |
| <i>bellus</i> Wright, 1906 | <i>morumbalaensis</i> De Wild. |
| <i>brachylimbus</i> Baker | <i>mosambicensis</i> Baker |
| <i>brevispathus</i> Klatt, 1893 | <i>Münzneri</i> Vaupel, 1912 |
| <i>calothyrsus</i> Vaupel, 1912 | <i>numidicus</i> Jord. |
| <i>carmineus</i> Wright, 1906 | <i>nyikensis</i> Baker, 1897 |
| <i>Carsoni</i> Baker, 1895 | <i>oliganthus</i> Baker, 1898 |
| <i>caudatus</i> Baker, 1895 | <i>oligophlebius</i> Baker |
| <i>Conrathi</i> Baker | <i>oreocharis</i> Schltr., 1896 |
| <i>cyclocarpus</i> Jord. | <i>pallidus</i> Baker, 1898 |
| <i>cymbarinus</i> Baker | <i>platyphyllus</i> Baker, 1893 |
| <i>decipiens</i> Vaupel, 1912 | <i>porrigeus</i> Jord. |
| <i>densiflorus</i> Baker | <i>pretorius</i> Kuntze |
| <i>elegans</i> Vaupel, 1912 | <i>prismatosiphon</i> Schltr., 1899 |
| <i>Elloni</i> Baker, 1890 | <i>puberulus</i> Vaupel, 1912 |
| <i>Flanaganii</i> Baker | <i>pubescens</i> Pax |
| <i>flexuosus</i> Baker, 1894 | <i>punctatus</i> Dam., 1889 |
| <i>fusco-viridis</i> Baker | <i>quilimanensis</i> Baker, 1898 |
| <i>gallacensis</i> Vaupel, 1912 | <i>reductus</i> Baker |
| <i>garuanus</i> Vaupel, 1912 | <i>remorifolius</i> Baker |
| <i>Gawleri</i> Jord. | <i>rigescens</i> Jord. |
| <i>gazensis</i> Rendle | <i>rigidifolius</i> Baker |
| <i>germanicus</i> Jord. | <i>rupicola</i> Vaupel, 1912 |
| <i>glaucus</i> Heldr., 1896 | <i>ruricola</i> Jord. |
| <i>Goetzei</i> Harms, 1900 | <i>Schlechteri</i> Baker |
| <i>gracillimus</i> Baker, 1895 | <i>spectabilis</i> Baker |
| <i>Hanru</i> Jord. | <i>Staudtii</i> Vaupel, 1912 |
| <i>Harmsianus</i> Vaupel, 1912 | <i>stenophyllus</i> Baker, 1897 |
| <i>heterolobus</i> Vaupel, 1912 | <i>subaphyllus</i> Brown, 1909 |
| <i>inconspicuus</i> Baker | <i>subulatus</i> Baker, 1898 |
| <i>Johnstoni</i> Baker, 1897 | <i>Taubertianus</i> Schltr., 1899 |
| <i>junodi</i> Baker | <i>trichostachys</i> Baker |
| <i>karendensis</i> Baker | <i>tritoniaeformis</i> Kuntze |
| <i>kubangensis</i> Harms | <i>tritonoides</i> Baker, 1895 |
| <i>Lannesii</i> Jord. | <i>uhekensis</i> Harms, 1900 |
| <i>linearifolius</i> Vaupel, 1912 | <i>venulosus</i> Baker, 1897 |
| <i>littoralis</i> Jord. | <i>Verdickii</i> De Wild. |
| <i>longanus</i> Harms | <i>vexillare</i> Martelli |
| <i>Mackinderi</i> Hook. | <i>Whytei</i> Baker, 1897 |

The reader is reminded that plants of these species, as well as of the majority of the species that have been known longer, are not offered by dealers in plants — are not procurable even from botanical gardens; and that the specimens of these species are to be found in European herbaria which the writer has not had the opportunity to examine. The writer, therefore, cannot vouch for the authenticity of any of these

names as distinct species, nor can a complete key be made of all the species. It is desired, however, to call attention to the present status of the subject, and it is hoped that some person favorably located may carry forward the work so ably begun by Mr. Baker and Dr. Klatt.

The following list of synonyms is as complete as present knowledge of the genus will admit:

- affinis* Pers. = *cuspidatus* Jacq.
alatus Jacq. = *orchidiflorus*
albidus Jacq. = a variety of *blandus*
aleppicus Boiss. = *atroviolaceus*
algoensis Sweet = *alatus* Linn.
alpigenus C. Koch, 1848 = *illyricus*
ambiguus Roem. & Schult. = *hirsutus*
andongensis Welw. ex Baker = *Quartinianus*
Andrewsii Klatt = *brevifolius* Jacq.
angolensis Welw. ex Baker = *Quartinianus*
angustifolius Salisb. = *angustus* Linn.
angustus Herb. Linn. = *blandus*, *undulatus*
angustus Jacq. ex. Thunb. = *hastatus*
angustus Thunb. = *undulatus*
aphyllus Ker-Gawl., 1827 = *brevifolius*

biflorus Roem. & Schult. = *hirsutus*
bimaculatus Lam. = *involutus* De la Roche
binervis Sweet = *grandis*
Borneti Ardoino = *segetum*
Boucheanus Schlecht., 1832 = *palustris*
brevicollis Klatt = *brevifolius* Jacq.
Breyntianus Ker-Gawl., 1827 = *recurvus*
byzantinus Bieb. = *segetum*
byzantinus Coss ex. Ball, 1878 = *illyricus*

calvatus Baker = a variety of *Ludwigii*
campanulatus Andr. = var. *carneus* of *G. blandus*
carinatus (Soland.) Ait. = *recurvus*
carneus Andr. = *brevifolius*
carneus De la Roche = var. *carneus* of *G. blandus*
carneus Herb. Banks = *hirsutus*
carneus Jacq. = var. *ventricosus* of *G. cuspidatus*
carneus Klatt = *Eckloni*
caucasicus Herb., 1842 = *segetum*
citrinus Klatt = *trichonemifolius*
cochleatus Baker, 1876 = *unguiculatus*
collinus Salisb. = *communis*
communis Cav. = *illyricus*
communis Linn. in part = *segetum*
communis Thunb. = *carneus*
communis Vahl. in part = *byzantinus*
commutatis Bouché = *segetum*
concolor Salisb. = var. *concolor* of *G. tristis*
Cooperi Baker = var. *Cooperi* of *G. psittacinus*
cordatus Thunb. = *angustus*
crispiflorus Herb., 1842 = *imbricatus*
cuspidatus Andr. = var. *ventricosus* of *G. cuspidatus*

dalmaticus Tausch = *segetum*
dichotomus Thunb. = *permeabilis* De la Roche
dubius Guss. = *illyricus*
dubius Parl. = *spathaceus*

elatus Balb. = *byzantinus*
elongatus Thunb. = *grandis*
ensifolius Baker = *cuspidatus* Jacq.
equitans Thunb. = var. *namaquensis* of *G. alatus*
excelsus Ker-Gawl. = *blandus*

fasciatus Roem. & Schult. = *vittatus*
festivus Herb., 1844 = *brevifolius*
flabellifer Tausch, 1836 = *oppositiflorus*
floribundus Hort. Batav. ex. Tausch = *oppositiflorus*
formosus Pers. = *striatus*

galeatus Burn. = *alatus*
galiciensis Bess. = *imbricatus*
Gawleri Klatt = a variety of *Watsonius* Thunb.
gracilis Licht. = *scaber*
grandiflorus Andr. = *floribundus*
Gueinzii Hunze, 1847 = *blandus*
Guepini Koch, 1840 = *segetum*

hastatus Ker = *comerculus* Ker
hirsutus Ker = *villosus*
hirtus Steud. = *hirsutus*
hygrophilus Boiss. ex. Baker, 1877 = *imbricatus*

inarimensis Guss. = *segetum*
infestus Bianca = *segetum*
italicus Miller = *communis*

kilimandscharicus Pax = *Quartinianus*

laccatus Thunb. = *villosus*
laevis Thunb. = *grandis*
Lamarckii Roem. & Schult. = *villosus*
Lemonia Pourr. ex Steud. = *blandus*
leucanthus Bouché = *segetum*
libanoticus Boiss. = a variety of *imbricatus*
liliaceus Houtt. = *angustus*, *gracilis*, etc.
Ludoviciae Jan. = *segetum*
luridus Hornem. = *trichonemifolius*
luteus Klatt in part = *bicolor*

Macowaniensis Klatt, 1885 = *angustus*
maculatus Sweet = *recurvus* Linn.
Marchallii Poir. = *imbricatus*
monostachyus Roem. & Schult. = *hastatus*, etc.
Mortonianus Steud. = *blandus*
Mortonius Herb. = *blandus*
mucronatus Lam. = *hirsutus*

namaquensis Ker-Gawl. = var. *namaquensis* of *G. alatus*
narbonensis Bub. = *illyricus*
natalensis Reinw. = *psittacinus*
neglectus Schult. = *palustris*
newii Baker = *Quartinianus*
notarisii Parl. = *communis*

odorus Salisb. = *recurvus*
oppositifolius Hort., 1893 = *oppositiflorus*
orchidiflorus Pers. non Andr. = *arenarius*
ornatus Klatt, 1885 = *inflatus*
orobranche Red. Lil. = *brevifolius* Jacq.

papilionaceus Lichtst. = *alatus* Linn.
parviflorus Jacq. = *montanus* Linn.
pauciflorus Berdaw = *imbricatus*
petraeus Boiss. = *atroviolaceus*
pictus Sweet = *blandus*
pilosus Eckl. = *villosus*
pratensis Dietr. = *palustris*
primulinus Baker, 1890 = *Quartinianus*
pterothyllus Pers. = *gracilis* Jacq.
punctatus Jacq. = *recurvus* Linn.
punctulatus Schrank, 1822 = *villosus* (?)
puniceus Lam. = *villosus* Ker

Raddeanus Trantv., 1875 = *imbricatus*
ramosus Baker = a variety of *montanus* Linn.
Reuteri Boiss. = var. *Reuteri* of *G. illyricus*
ringens Andr. = *recurvus*
ringens var. *undulatus* Andr. = *niveni* Baker
ringens Eckl. = *inflatus*
roseus Andr. = *hirsutus*
rossicus Pers. = *imbricatus*
rubromarginatus Schrad. = *hirsutus*

sagittifer Salisb. = *blandus* (?)
salicifolius Baker, 1875 = *Quartinianus*
schimperianus Steud. ex Baker, 1877 = *Quartinianus*
segetalis St. Lag. = *segetum*
serotinus Welw. = var. *Reuteri* of *G. illyricus*
serotinus Willd. = *illyricus*
setifolius Eckl. = *gracilis*
spathaceus Parl. = *segetum*
speciosus Eckl. = *cardinalis*
speciosus Thunb. = *alatus*
spilanthus Klatt in part = *brevifolius* Jacq.
spilanthus Klatt in part = *hastatus* Thunb.
spilanthus Spreng. ex Baker, 1877 = *gracilis*
spiralis Pers. = *tristis*
splendens Welw. ex Baker = *Quartinianus*
striatus Andr. = *undulatus*
strictus Jacq. = *hyalinus*
suaveolens Ker. = *recurvus*
subbiflorus Boiss. = *imbricatus*
sulcatus Lam. = *mollis*

tabularis Pers. = *montanus* Linn.
Taylorianus Rendle = *Quartinianus*
telifer Stokes = *angustus*
Templemanii Klatt, 1885 = *bicolor* Baker
tenuiflorus C. Koch, 1848 = *illyricus*
tenuis Bieb. = *imbricatus*
tenuis Salzm. = *palustris*
Thunbergii Eckl. = *hastatus*
tigrinus Eckl. ex Baker, 1877 = *vomerulus* Ker.
trimaculatus Lam. = *angustus*
triphyllus Bertol. = *palustris*
tristis Herb. Linn. ex Baker, 1877 = *grandis*
tristis Thunb. = *tenellus*

undulatus Linn. in part = *cuspidatus* Jacq.
undulatus Scheev. = *vittatus*
uniflorus Klatt, 1882 = *alatus*

ventricosus Lam. = var. *ventricosus* of *G. cuspidatus*.
versicolor Andr. = *grandis*
villosiusculus Soland. ex Baker = *villosus*
vinulus Klatt, 1885 = *vittatus*
violaceus Pers. = *recurvus*
viperatus Ker-Gawl. = *orchidiflorus*
virescens Thunb. = *orchidiflorus*
vittatus Zuccag. = *undulatus* Jacq.

Welwitschii Baker, 1878 = *Quartinianus*

The following species have been described as *gladioli*, but belong to other genera:

abbreviatus Andr. = *Antholyza quadrangularis*
aequinoctialis Herb., 1842 = *Acidanthera aequinoctialis*
aletroides Vahl. = *Watsonia aletroides*
alopecuroides Linn. = *Watsonia plantaginea*
alopecuroides Linn. = *Watsonia spicata*
amabilis Salisb. = *Lapeyrousia juncea*
amoenus Roem. & Schult. = *Tritonia rosea*
amoenus Salisb. = *Watsonia meriana*
anceps Linn. in part = *Lapeyrousia compressa*
anceps Linn. ex. Baker, 1877 = *Lapeyrousia Fabricii*
angustifolius Lam. = *Babiana tubiflora*
antholyza Poir. = *Antholyza nervosa*

bicolor Thunb. = *Synnotia bicolor*
biflorus Thunb. = *Salemoneus biflorus*
bracteatus Thunb. = *Lapeyrousia fissifolia*
bracteolatus Lam. = *Watsonia punctata*
Burmanni Schrank, 1822 = *Ixia Burmanni*

capitatus Linn. = *Aristea capitata*
caryophyllaceus Poir. = *Watsonia humilis*
caryophyllus Houtt. = *Watsonia brevifolia*
coccineus Schrank, 1822 = *Ixia speciosa*
crispus Linn. = *Tritonia crispa*
crocatus Pers. = *Tritonia crocata*
cunonia Gaert. = *Antholyza cunonia*

denticulatus Lam. = *Lapeyrousia Fabricii*
distichus Roem. & Schult. = *Babiana distichia*

elongatus Salisb. = *Babiana tubiflora*
excisus Jacq. = *Lapeyrousia juncea*
exscapus Thunb. = *Acidanthera tubulosa*

Fabricii Thunb. = *Lapeyrousia Fabricii*
falcatus Linn. = *Lapeyrousia Fabricii*
fissifolius Jacq. = *Lapeyrousia fissifolia*
fistulosus Jacq. = *Watsonia spicata*
flavus Soland. = *Tritonia flava*
flexuosus Linn. = *Acidanthera tubulosa*
flexuosus Thunb. = *Acidanthera flexuosa*
fragrans Jacq. = *Babiana plicata*

galeatus Jacq. = *Synnotia galatea*
Garnierii Klatt (in Decken, Reis. Bot. 3:73) = *Antholyza Watsonioides*
glumaceus Thunb. = *Watsonia rosea*
gramineus Linn. = *Melaspheerula graminea*

- inclinatus* Red. Lil. = *Babiana tubiflora*
indicus Miller = *Ferraria undulata*
infundibuliformis Schrank, 1822 = *Watsonia meriana*
iridifolius Jacq. = *Watsonia meriana*
ixioides Thunb. = *Tritonia paniculata*

junceus Burm. = *Lapeyrousia juncea*

laccatus Jacq. = *Watsonia humilis*
laceratus Burm. = *Tritonia crispa*
latifolius Lam. = *Babiana obtusifolia*
laxus Thunb. = *Meristostigma laxa*
lineatus Salisb. = *Tritonia lineata*
lomenia J. F. Gmel. = *Lomenia borbonica*
longicollis Baker, 1876 = *Acidanthera platyphylla*
longiflorus Andr. = *Babiana tubata*
longiflorus Herb. Linn. ex Baker, 1877 = *Acidanthera tubulosa*
longiflorus Jacq. = *Tritonia pallida*
longiflorus Linn. Suppl. = *Ixia paniculata*
lucidior Baker = *Homoglossum lucidor* Baker

marginatus Linn. = *Watsonia marginata*
marmoratus Lam. = *Lapeyrousia juncea*
merianellus Thunb. = *Antholyza merianella*
merianus Thunb. = *Antholyza aletroides*
minor Baker = *Antholyza Watsonioides*
minutiflorus Schrank, 1822 = *Watsonia plantaginea*
mucronatus Jacq. = *Babiana mucronata*
mucronatus Red. Lil. = *Babiana stricta*

nanus Andr. = *Babiana rosea*
nervosus Baker = *Antholyza nervosa* Thunb.
nervosus Lam. = *Babiana stricta*

odorus Schrank = *Ixia fragrans*

paniculatus Pers. = *Lapeyrousia juncea*
papilionaceus Vahl. = *Watsonia Lamarckii*
pectinatus Soland. ex Baker, 1877 = *Tritonia crispa*
plantagineus Pers. = *Watsonia plantaginea*
plicatus Jacq. = *Babiana distichia*
plicatus Linn. = *Babiana stricta*
plicatus Thunb. = *Babiana plicata*
polystachyus Andr. = *Lapeyrousia juncea*
polystachyus Thunb. = *Babiana plicata*
Pottsii McNab = *Tritonia Pottsii*
praecox Andr. = *Antholyza revoluta*
punctatus Roem. & Schult. = *Watsonia punctata*
pumiceus Vahl. = *Babiana stricta*
purpureus Vahl. = *Babiana villosa*
pygameus Roem. & Schult. = *Babiana sulphurea*
pyramidalis Andr. = *Watsonia rosea*
pyramidalis Lam. = *Watsonia iridiflora*

quadrangularis Ker-Gawl. = *Antholyza quadrangularis*

ramosus Linn. = *Melasmaerula graminea*
ramosus Murr. = *Moraea ramosa*
recurvus Houtt. = *Antholyza revoluta*
recurvus Thunb. = *Hesperantha radiata*
reflexus Lichtst. = *Babiana plicata*
refractus Jacq. = *Freesia refracta*

resubspinatus Pers. = *Freesia refracta*
ringens Thunb. = *Babiana coronata*
roseo-albus Jacq. = *Watsonia inderianus*
roseus Jacq. = *Tritonia rosea*
roseus Willd. = *Ixia amoena*
rubens Vahl. = *Watsonia punctata*
rubrocyaneus Vahl. = *Babiana stricta*

secundus Thunb. = *Babiana secunda*
securiger Soland. = *Tritonia securiger*
setifolius Linn. = *Lapeyrouisia juncea*
silenoides Jacq. = *Lapeyrouisia silenoides*
sparmanni Thunb. = *Freesia refracta*
spatheceus Linn. = *Babiana spathacea*
spicatus Lam. = *Watsonia Lamarckii*
spicatus Linn. = *Watsonia spicata*
splendens Herb., 1843 = *Antholyza caffra*
Sprengelianus Schult. = *Watsonia stricta*
stenophyllus Schrank, 1822 = *Babiana plicata*
stoloniferous Salisb. = *Antholyza aethiopica*
striatus Herb. Banks = *Watsonia rosea*
striatus Soland. ex Baker, 1876 = *Tritonia Bakeri*
strictiflorus Delile = *Watsonia humilis*
strictus Soland. = *Babiana stricta*
subulatus Vahl. = *Watsonia punctata*
sulphureus Jacq. = *Babiana stricta*

testaceus Vahl. = *Watsonia brevifolia*
Thunbergii F. G. Diet. = *Acidanthera tubulosa*
triticeus Thunb. = *Watsonia plantaginea*
tubatus Jacq. = *Babiana tubata*
tubiflorus Linn. = *Babiana tubiflora*
tubulosus Burm. = *Watsonia spicata*
tubulosus Jacq. = *Watsonia aletroides*

venosus Willd. = *Tritonia lineata*
villosulus Roem. & Schult. = *Babiana stricta*
villosus Burm. = *Synnotia bicolor*
villosus Vahl. = *Babiana stricta*
viridis Aiton = *Tritonia viridis*

Watsonioides Baker = *Antholyza Watsonioides*
Watsonius Thunb. = *Antholyza revoluta*

xanthospilus Red. Lil. = *Freesia refracta*

Brief descriptions of some species of *Gladiolus* are given in the following table:

GLADIOLUS SPECIES

Species	Habitat	Intro- duced	Height (inches)	Number of flowers on a stalk	Color of flowers
<i>alatus</i> Linn.	Cape Colony	.....	6-12	3-5	Bright red
<i>alatus</i> var. <i>namaquensis</i> Ker.	Namaqualand	.....	.....	.....	.....
<i>angustus</i> Linn.	Cape Colony	1756	24-36	2-6	White, three lower segments with bright purple spots
<i>antunesii</i> Baker, 1898	Angola	.....	18-24	.....	Purple
<i>aphanophyllus</i> Baker, 1898	British Central Africa	.....	6-12	.....	White
<i>arcuatus</i> Klatt, 1882	Little Namaqualand	.....	6	2-6	Pinkish, with a greenish tube
<i>arcuatus</i> Baker, 1876	Cape Colony	.....	12-18	.....	Bright red or yellow
<i>Arnoldianus</i> De Wild., 1901	Katanga	.....	15	4-5	Violet-spotted
<i>atropurpureus</i> Baker, 1876	Zambezi Highlands	.....	12	6-9	Bright dark purple
<i>atrorubens</i> Brown, 1914	Transkei	1876	18-24	4-9	Dark red
<i>atroviolaceus</i> Boiss., 1853	Palestine	.....	12-18	4-8	Dark purple
<i>aurantiacus</i> Klatt, 1867	Natal	1889	36	12	Bright orange yellow, sometimes tinged red
<i>aureus</i> Baker, 1897	Cape Colony	.....	6-12	1-2	Bright yellow
<i>bellus</i> Wright, 1906	British Central Africa	.....	15-18	8-10	.....
<i>benguellensis</i> Baker, 1877	Angola	.....	12	6-12	Bright red, throat mottled purple on a yellow ground
<i>bicolor</i> Baker, 1876	Cape Colony	.....	6-9	2-3	Dull yellow
<i>biflorus</i> Klatt, 1885	Cape Colony	.....	6-8	2-3	Bright lilac
<i>blandus</i> Aiton, 1789	Cape Colony	1774	12-18	4-8	White, tinged red
<i>Bolusii</i> Baker, 1892	Winterhoek Mountain	.....	18-24	2-4	Bright pink
<i>brachyandrus</i> Baker	Zambezi Highlands	1879	12	8-10	Reddish white
<i>brachyscyphus</i> Baker, 1892	East Griqualand	.....	18-24	2-6	Bright lilac
<i>brevicaulis</i> Baker, 1877	Lower Congo	.....	6-8	6-15	Dark purple
<i>brevifolius</i> Jacq.	Cape Colony	.....	12-24	4-12	Pink or lilac, lower segments with purplish marks in throat
<i>Buchananii</i> Baker, 1892	Zambezi Highlands	.....	12-18	6-8	Pale red
<i>Buettneri</i> Pax, 1892	Togoland	.....	24-36	.....	Yellow, minutely spotted brown
<i>byzantinus</i> (Bauhin) Miller	Mediterranean region	.....	18-24	Many	Dark purple, lower segments with a white line down center
<i>calothyrsus</i> Vaupel, 1912	German East Africa	.....	36	14	Bright yellowish rose

<i>cardinalis</i> Curt., 1791.....	Cape Colony.....	1789	24-36	12-20	Bright scarlet, blotched white in throat
<i>carmineus</i> Wright, 1906.....	South Africa.....	.....	18	5	Carmine, two inner lobes with a paler spot surrounded by a darker border
<i>caudatus</i> Baker, 1895.....	British Central Africa.....	.....	12-18	Few	Pink
<i>cochleatus</i> Sweet, 1832.....	Lion Mountain.....	.....	6-18	1-2	White, with purple mark in throat
<i>coeruleus</i> Baker, 1877.....	Angola.....	.....	12-18	2-3	Dull purple
<i>communis</i> Linn.....	Central Europe.....	.....	12-18	4-8	Bright purple, lower segments with a white line down center
<i>compeus</i> Oliver, 1875.....	Lake Tanganyika.....	.....	24	4	Horn-colored
<i>crassifolius</i> Baker, 1876.....	Natal.....	.....	24-36	Numerous	Bright red
<i>cruentus</i> Moore, 1868.....	Natal.....	1868	24-36	6-10	Bright scarlet, lower segments with a large white blotch, and with red spots in throat
<i>cuspidatus</i> Jacq.....	Cape Colony.....	.....	24-36	4-8	White or pale pink, lower segments with a purple blotch
<i>cuspidatus</i> var. <i>ensifolius</i> Baker.....	Cape Colony.....	.....	.....	.....	Pink
<i>cuspidatus</i> var. <i>ventricosus</i> Lam.....	Cape Colony.....	.....	10-20	.....	.....
<i>debilis</i> Ker, 1825.....	Cape Colony.....	.....	12-18	1-3	White, two inner segments with a lilac or claret red blotch in throat
<i>decepiens</i> Vaupel, 1912.....	Katanga.....	.....	36	10	Rose
<i>decoratus</i> Baker, 1876.....	Morambella.....	1887	24-36	6-12	Bright purple, lower segments with a very large pale blotch
<i>dioides</i> Wright (G. <i>sulphureus</i> Baker, 1877).....	German East Africa.....	.....	12	7-8	Bright yellow
<i>dracoccephalus</i> Hook. f., 1871.....	Natal.....	1870	24	3-6	Yellowish green, minutely grained claret-purple
<i>Dragei</i> Klatt, 1863.....	Little Namaqualand.....	.....	3-6	6-9	Purple
<i>Eckloni</i> Lehm., 1836.....	Cape Colony.....	.....	18-36	6-12	Bright red, copiously and minutely spotted purple-red
<i>edulis</i> Burch., 1816.....	Cape Colony.....	.....	12-24	8-15	Pale lilac
<i>elegans</i> Vaupel, 1912.....	Nyassaland.....	.....	10-12	6	White
<i>Elliotii</i> Baker, 1891.....	Transvaal.....	.....	12	.....	Claret red
<i>erectiflorus</i> Baker, 1896.....	British Central Africa.....	.....	12	2-3	White, veined and flushed bright purple
<i>Flanaganii</i> Baker, 1897.....	Basutoland.....	.....	6	3	Bright crimson
<i>flexuosus</i> Baker, 1894.....	British Central Africa.....	.....	12-18	Few	White, tinged dull purple
<i>florentiae</i> Marl., 1907.....	South Africa.....	.....	6	2-3	Bright yellow
<i>floribundus</i> Jacq.....	Cape Colony.....	.....	18-24	4-12	White, with a pink tinge
<i>formosus</i> Klatt, 1863.....	Cape Colony.....	.....	12-30	Many	Bright mauve purple
<i>fusco-viridis</i> Baker, 1897.....	South Africa.....	1896	18-24	10-12	Minutely striped claret-brown on a greenish ground

GLADIOLUS SPECIES (continued)

Species	Habitat	Intro- duced	Height (inches)	Number of flowers on a stalk	Color of flowers
gallacensis Vaupel, 1912.	Gallahochland.	.....	36	7	Fire red
Garnieri Klatt	Madagascar	.....	18-36	4-6	Bright red
garuanus Vaupel, 1912.	North Kamerun.	.....	24-30	4	Yellow, dotted carmine with broad car- mine stripes in throat
gazensis Rendle, 1912.	Gazaland	.....	9-10	.....	Purplish rose
Goetzei Harms, 1900.	Uhehe	.....	9-12	Many	Yellow, dotted red
gracilis Jacq., 1787	Cape Colony.	.....	12-24	2-6	Pale lilac-blue
gracillimus Baker, 1895	British Central Africa.	.....	12-18	Few	Pale lilac
grandis Thunb., 1807	Cape Colony.	.....	12-24	2-6	Yellowish white, more or less tinged purple-brown
Grantii Baker, 1892.	Lake Tanganyika.	.....	24-36	6-8	Yellowish
gregarius Welw., 1877	Angola.	.....	12-18	10-12	Yellow, with two violet marks in throat
halophilus Boiss., 1853	Asia Minor	.....	6-9	2-5	Rose
Hanningtoni Baker, 1892	Mountains of tropical Africa.	.....	9-12	12-20	Dark purple
Harmsianus Vaupel, 1912	South Angola	.....	.....	Many	White, with bright red shadings
hastatus Thunb.	Cape Colony.	.....	12-24	2-4	Pink
heterolobus Vaupel, 1912	North Kamerun.	.....	24-30	8-14	Bright rose
hirsutus Jacq.	Cape Colony.	.....	12	2	Yellow, dotted inside with red
humilis Stapf, 1885	Mesopotamia	.....	6-8	3	Yellow, dotted inside with red
hyalinus Jacq.	Cape Colony	.....	12	2	Yellow, dotted inside with red
illyricus Koch	Europe.	.....	12-18	3-6	Bright purple
imbricatus Linn.	Europe, Asia.	.....	12-18	4-10	Dark purple
inandensis Baker, 1892.	Natal.	.....	12-18	6-8	White, with a red keel outside
inflatus Thunb.	South Africa.	.....	12	1-4	Pink
involutus De la Roche.	Cape Colony.	.....	18	4-8	Bright pink, with purple blotches in throat
Johnstoni Baker, 1897	British Central Africa.	.....	.....	.....	Bright red
Kirkii Baker, 1890	King William's Town	.....	36	.....	Pale pink, unspotted
Kotschyanus Boiss., 1853	Persia.	1886	12-24	4-12	Dark violet-purple, darker purple line down center of lower segments
kubangensis Harms	Angola.	.....	18	1-2	Spotted reddish brown

<i>lambda</i> Klatt, 1863.	Cape Colony.	.....	12	2	White, lower segments with two purple blotches at base
<i>laxiflorus</i> Baker, 1877.	Angola.	.....	12	4-6	Rose-purple
<i>Leichtlinii</i> Baker, 1889.	Transvaal.	.....	24	6-8	Bright red, lower segments red, at the tip yellow, with minute spots
<i>linearifolius</i> Vaupel, 1912.	Katanga.	.....	12-15	3-5	Deep lilac
<i>Ludwigii</i> Pappe, 1891.	South Africa.	.....	24-36	20-30	Pale yellow
<i>luridus</i> Welw., 1877.	Angola.	.....	12	10-12	Dull purple
<i>luteolus</i> Klatt.	Portuguese East Africa.	.....	36	.....	Yellowish
<i>luteus</i> Lam.	Madagascar.	.....	12	Many	Yellow
<i>MacKinderi</i> Hook., 1902.	Mount Kenia.	.....	24	5-6	Scarlet
<i>Macowani</i> Baker, 1892.	South Africa.	.....	24-36	6-10	Bright scarlet
<i>macrophlebius</i> Baker, 1898.	Angola.	.....	24	.....	Deep red
<i>makungensis</i> Baker.	Angola.	.....	24-30	8-10	Violet
<i>Masoniorum</i> Wright, 1910.	Tenbuland.	.....	12	9-10	Cream, with pale yellow throat
<i>masukuensis</i> Baker, 1897.	British Central Africa.	.....	12	.....	Lilac
<i>Mellieri</i> Baker, 1876.	Zambezi Highlands.	.....	12-18	6-12	Bright red
<i>micranthus</i> Baker.	Bechuanaland.	.....	6-12	12-20	Bright purple
<i>micranthus</i> Stapf, 1885.	Asia Minor.	.....	6-8	3	Purple-violet
<i>microphyllus</i> Baker, 1892.	East Griqualand.	.....	6-8	.....	Pale red
<i>Milleri</i> Ker, 1803.	Cape Colony.	1757	12-18	4-5	Milk white
<i>minus</i> Vaupel, 1912.	South Kanerun.	.....	36-45	10-15	Upper segments rosy flesh, lower side segments blood red, lower middle segment rosy flesh with blood-red stripe
<i>montanus</i> Linn.	Cape Colony.	.....	24-36	Many	Pale red
<i>multiflorus</i> Baker, 1877.	Angola.	.....	12	.....	Bright purple
<i>Münzneri</i> Vaupel, 1912.	Nyasaland.	.....	18-20	4-6	Blue
<i>niweni</i> Baker, 1892.	Cape Colony.	1800	12	3-4	Bright lilac
<i>nyikensis</i> Baker, 1897.	British Central Africa.	.....	12	.....	Creamy white, veined red and tinged pink
<i>Oatesii</i> Rolfe.	British Central Africa.	.....	12-18	.....	White, tinged greenish brown
<i>ochroleucus</i> Baker, 1876.	Tenbuland.	.....	30-36	8-12	Creamy yellow
<i>oliganthus</i> Baker, 1898.	German East Africa.	.....	9-12	.....	White
<i>oligophlebius</i> Baker, 1895.	German East Africa.	.....	12-18	Few	Pale pink
<i>oppositiflorus</i> Herb., 1842.	oppositiflorus Andr.	.....	36-48	30-40	White
<i>orchidiflorus</i> Andr.	orchidiflorus Andr.	.....	12-18	4-6	Greenish yellow
<i>oreocharis</i> Schltr., 1896.	Cape Colony.	.....	12	few	.....
<i>pallidus</i> Baker, 1898.	Cape Colony.	.....	24	2-3	Pale pink
<i>Pappet</i> Baker, 1892.	Angola.	.....	.....	.....	Pink
<i>parviflorus</i> Baker.	Table Mountain.	.....	.....	.....	Pale, unstriped
	Cilician Taurus.	1877	.....	.....	.....

GLADIOLUS SPECIES (continued)

Species	Habitat	Intro- duced	Height (inches)	Number of flowers on a stalk	Color of flowers
parvulus Schltr.	Natal.	.....	12-15	2-4	Rose
pauciflorus Baker, 1877	Mount Kilimanjaro.	.....	24-36	5-6	White, lower segments not blotched at center
permeabilis De la Roche	Cape Colony	.....	12-24	6-12	Pale pink or lilac
persicus Boiss., 1833	Persia.	.....	6-9	4-9	Pale purple
platyphyllus Baker, 1893	Natal.	.....	18	.....	Deep yellow, with fine red lines
primulinus Baker, 1890	Tropical Africa.	.....	18	4-5	Uniform primrose yellow
prismatosiphon Schltr., 1899	South Africa.	1890	12-15	3-6	Pale rose, with purple dots
psittacinus Hook., 1830	South Africa.	.....	36-48	Many	Upper segments dark crimson, lower segments red and yellow
psittacinus var. Cooperi Baker	.....	.....	36-48	Many	Violet-red
puberulus Vaupel, 1912	Katanga.	.....	15-18	7-10	Pale pink
pubescens Baker, 1876	Natal.	.....	12-18	3-6	Pale red
pulchellus Klatt, 1863	Cape Colony.	.....	12	4-8	Greenish yellow
punctatus Thunb.	Paard Island.	.....	24	6-10	Primrose yellow, two inner segments with red-brown blotch at throat
purpureo-auratus Hook. f., 1872	Natal.	1872	36	10-15	Bright yellow or bright red
Quartinianus A. Rich., 1851	Mountains of tropical Africa.	1884	24-48	6-9	Bright pink
quilimanensis Baker, 1898	Portuguese East Africa.	.....	24-30	.....	Reddish
racidiflorus Klatt, 1882	Port Natal.	.....	24	Many	Yellowish white, much flushed with dark lilac. Very fragrant
recurvus Linn.	Cape Colony.	.....	12-24	2-6	Bright red
Rehmanni Baker, 1892	Transvaal.	.....	18-24	6-9	Bright red, without blotch in throat
Rogersii Baker, 1892	Cape Colony.	.....	12	3	Red
rupicola Vaupel, 1912	West Usambara.	.....	15-18	6	Salmon red
salmonius Baker, 1892	Cape Colony.	.....	12	.....	Bright scarlet, three lower segments with a great blotch of white, spotted with scarlet in throat
Saundersii Hook. f., 1870	Cape Colony.	.....	24-36	6-8	Pinkish white
scaphochlamys Baker, 1892	Cape Colony.	.....	18-24	6-8	Reddish
Scullyi Baker, 1892	Little Namaqualand.	.....	12-18	3-4	

Mediterranean region			12-18	6-10	Bright purple, lower segments with a white central line
segetum Ker, 1864					
sericeo-villosus Hook., 1864	Orange Free State	1864	30-48	20-30	Bright yellow
sintensis Baker, 1892	Armenia		8	Few	Dark violet
spadiceus Pappe, 1892	Swartberg		12-18	1	Pink
spatulatus Baker, 1892	Transvaal		12	4-5	Dull red
spicatus Klatt, 1868	Guinea		21	20	Bright purple
splendens Baker, 1876	Cape Colony	1870	24	4-6	Bright scarlet, three lower segments with a pale keel through lower half
splendidus Rendle	German East Africa		39-43	7-8	Bright crimson
Staudtii Vaupe!, 1912	Kamerun		17-21	6	Shining red
stenophyllus Baker, 1897	Cape Colony				Red
striatus Jacq.	Cape Colony		12	2-3	Yellowish and pale violet, streaked with red
strictus Jacq.	Cape Colony		12	2-3	Yellowish, with purple dots and stripes
subaphyllus Brown, 1909	Natal		8-12	2-3	White, tinted pink
subulatus Baker, 1898	Angola		6-12	Few	Bright pink
sulphureus De Graaf, 1850	Transvaal	1873	13	6-8	Pale golden yellow
tabularis Ecklon, 1827	Table Mountain		12	5-6	White, with a tinge of pink
Taubertianus Schltr., 1879	South Africa		15-27	1-3	Pale violet
tendulus Jacq., 1787	Cape Colony		12-18	2-5	Yellowish white, tinged lilac, lower segments much spotted in throat
tenuis Baker, 1876	Swellendam		13-24	4-6	Pale pink
Thomsoni Baker, 1892	Mountains near Lake Nyassa	1880		6-12	Pale red
trichonemifolius Ker, 1811	Cape Colony		6-13	1-3	Yellow, three lower segments blotched purple in throat
tricolor Stapf, 1885	Asia Minor		6-8	3	Upper segments purple, lower segments white with purple blotches
triphyllus Sibth.	Cyprus		6-9	2-3	Yellowish white, slightly flushed purple black on keel. Fragrant
tristis Linn.	Cape Colony		12-24	3-4	White
tristis var. concolor Schreb.	Cape Colony		12-24	3-4	Pink or pale lilac
tritonoides Baker, 1895	British Central Africa		18-24		Bright red
Tysoni Baker, 1892	Cape Colony		12	4-6	White, shaded with lilac
uhlenensis Harms, 1900	Uchelo		24	10-15	Mille white, with a red keel
undulatus Jacq.	Cape Colony		12	4-6	Purple
unguiculatus Baker, 1876	Sierra Leone		12-18	6-10	White, veined chart-purple
venulosus Baker, 1897	British Central Africa		18		Pale yellow to yellow, with violet veins
Verdieckii De Wild., 1911	Tukulu		15-18	3-9	

GLADIOLUS SPECIES (*concluded*)

Species	Habitat	Intro- duced	Height (inches)	Number of flowers on a stalk	Color of flowers
<i>villosus</i> Ker, 1827	Cape Colony .....	.....	12-24	3-4	Bright red or lilac
<i>vittatus</i> Hornem., 1815	Cape Colony .....	.....	12	3-6	Pink, three lower segments with red or lilac central blotches
<i>vomereculus</i> Ker, 1827	Cape Colony .....	.....	12-18	2-3	Lilac, three lower segments blotched yellow in throat
<i>Whytei</i> Baker, 1897	British Central Africa ..	.....	6-12	.....	Dark purple, lower segments white with dark purple spots
<i>Woodii</i> Baker, 1892	Natal and Transvaal .....	.....	12-18	4-6	Dark red
<i>zambesiacus</i> Baker, 1892	Zambezi Highlands .....	.....	12-18	4-6	Pale purple
<i>zanguebaricus</i> Baker, 1898	Zanzibar .....	.....	12	5-6	Bright pink

The following described species are those concerned in the development of the cultivated gladiolus. The majority of them, if not all, are still offered in the catalogs of European dealers. Except as otherwise noted, the descriptions are from *Flora Capensis* (Baker, 1896-97).

G. alatus (Linn. Sp. Plant. edit. 2, 53); corm small, globose; tunics brown, membranous; basal leaves 3-4, linear, rigid in texture, the lowest the longest, $\frac{1}{2}$ -1 ft. long, $\frac{1}{4}$ - $\frac{1}{2}$ in. broad, closely and strongly ribbed; stem $\frac{1}{2}$ -1 ft. long including the inflorescence; spike usually simple, few-flowered, very lax, with a very flexuose axis; spathe-valves broad, green, oblong-navicular, the outer 1-1 $\frac{1}{2}$ in. long; perianth pink; tube $\frac{1}{2}$ in. long, funnel-shaped at the top; upper segment cucullate, obovate, cuneate, with a short claw, 1 $\frac{1}{2}$ -1 $\frac{1}{4}$ in. long, $\frac{1}{2}$ - $\frac{1}{4}$ in. broad; side ones shorter, suborbicular, not unguiculate; 3 lower deflexed, with a small obovate blade and a long distinct claw; stamens reaching nearly to the tip of the upper segments; anthers lanceolate, $\frac{1}{2}$ in. long. *Thunb. Diss. No. 15, ex parte; Andr. Bot. Rep. t. 8; Ker in Bot. Mag. t. 586; Gen. Irid. 132; Baker, Handb. Irid. 223. G. speciosus, Thunb. Fl. Cap. i, 196. G. papilionaceus, Lichten. in Roem. et Schult. Syst. Veg. i, 408. Hebea geleata, Eckl. Top. Verz. 41.*

VAR. β . *G. namaquensis* (Ker in Bot. Mag. t. 592); more robust, with lanceolate leaves sometimes 1 $\frac{1}{2}$ -2 in. broad, 9-10 flowers, and upper perianth-segments an inch broad. *Ker, Gen. Irid. 132. G. equitinus, Thunb. Fl. Cap. 192. G. geleatus, Andr. Bot. Rep. t. 122.*

G. atroviolaceus Boiss. Diagn. xiii, 14. [Description from Baker, 1892.] *G. aleppicus* and *petraeus* Boiss.—Corm ovoid, $\frac{1}{2}$ - $\frac{3}{4}$ in. diam.; tunics of matted fibres, reticulated upwards. Leaves 3, firm, linear, closely ribbed, $\frac{1}{2}$ -1 ft. long, $\frac{1}{4}$ - $\frac{1}{2}$ in. broad. Stem slender, 1-1 $\frac{1}{2}$ ft. long. Flowers 4-8 in a lax secund spike; outer spathe-valve lanceolate, green, $\frac{3}{4}$ -1 in. long. Perianth-tube curved, narrowly funnel-shaped, $\frac{1}{2}$ in. long; limb dark purple, about an inch long; segments obovate, obtuse; upper $\frac{1}{2}$ in. broad; lateral shorter; 3 lower as long as the upper, with a claw as long as the blade. Anthers as long as the filaments, mucronate. Capsule oblong, torulose, $\frac{1}{2}$ in. long. Seeds globose, not winged.

G. blandus (Ait. Hort. Kew. i, 64); corm globose, middle-sized; tunics of parallel strands of matted fibres; produced subbasal leaves 4, ensiform, firm in texture, glabrous, the outer $\frac{1}{2}$ -1 ft. long, $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; stem 1-2 ft. long including inflorescence, sometimes branched; flowers white with a tinge of red, 4-8 in a lax distichous spike, all ascending; outer spathe-valves green, lanceolate, 1 $\frac{1}{2}$ -2 in. long; perianth-tube about 1 $\frac{1}{2}$ in. long, much dilated and curved at the top; limb rather longer than the tube, segments oblong-spathulate, narrowed to a point, the top one about $\frac{1}{2}$ in. and the others about $\frac{1}{2}$ in. broad at the middle; stamens reaching more than halfway up the limb. *Ker in Bot. Mag. t. 625; Gen. Irid. 140; Baker, Handb. Irid. 217. G. angustus, Linn. herb. ex parte!*

VAR. β . *G. albidus* (Jacq. Ic. t. 256); flower pure white. *G. blandus, Andr. Bot. Rep. t. 99. G. blandus, var. niveus, Ker in Bot. Mag. t. 648.*

VAR. γ . *G. mortoni* (Herb. in Bot. Mag. t. 3686); flowers sulcated; segments white, with copious, faint, vertical, pink streaks.

VAR. δ . *G. excelsus* (Sweet, Hort. Brit. edit. 2, 501); taller than the type, with longer leaves and a perianth-tube 2 in. long.

VAR. ϵ . *G. carneus* (Delaroché, Deser. 30, t. 4); more robust than the type, with more numerous, more spreading pink flowers, with broader, less acute segments. *G. campanulatus, Andr. Bot. Rep. t. 188. G. blandus, var., Ker in Bot. Mag. t. 645.*

VAR. *Hibbertii*, Hort., has pink flowers with very distinct, red, spade-shaped marks on the three lower segments.

G. byzantinus (Banks.) Miller, Diet. ed. vii, No. 3; Ker in Bot. Mag. t. 874; Reich. Ic. Crit., t. 643. [Description from Baker, 1892.] *G. elatus* Balb.—Corm globose, $\frac{1}{2}$ in. diam.; tunics brown, membranous. Leaves generally 3, ensiform, about a foot long, $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, laxly ribbed. Stem 1 $\frac{1}{2}$ -2 ft. long. Spike lax, many-flowered, 6-9 in. long; outer spathe-valve lanceolate, 1-1 $\frac{1}{2}$ in. long. Perianth-tube slightly curved, $\frac{1}{2}$ - $\frac{3}{4}$ in. long; segments dark purple, 1-1 $\frac{1}{4}$ in. long, about equal in length; 3 upper slightly imbricated in fully expanded flower, $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; 3 lower with a claw as long as the blade, and a white line down the centre. Anthers $\frac{1}{2}$ in. long, exceeding the filaments. Capsule turbinate, $\frac{1}{2}$ in. long. Seeds turgid, with a distinct membranous wing.

G. cardinalis (Curt. Bot. Mag. t. 135); corm large, globose; stem 3-4 ft. long; produced leaves 4-6, ensiform, rather thin in texture, glaucous green, reaching 2 ft. or more in length, $\frac{3}{4}$ -1 in. broad; flowers 12-20 in a spike $\frac{1}{2}$ -1 ft. long, all more or less ascending; spathe-valves green, thin in texture, lanceolate, acute, $1\frac{1}{2}$ -3 in. long; perianth bright scarlet; tube nearly straight, $1\frac{1}{2}$ in. long, funnel-shaped in the upper half; upper segments oblong-spathulate, acute, concolorous, 2 in. long, $\frac{3}{4}$ -1 in. broad; 3 lower shorter and narrower, conspicuously mottled with white at the throat; stamens reaching more than halfway up the limb; anthers lanceolate, $\frac{1}{3}$ the length of the filaments. *Schneev. Ic. t. 27; Red. Lil. t. 112; Ker, Gen. Irid. 143; Baker, Handb. Irid. 219. G. speciosus, Eckl. Top. Verz. 41, non Thunb.*

G. communis Linn. Sp. Plant. 52, ex parte; Curt. in Bot. Mag. t. 86; Ker in Bot. Mag. t. 1575; Red. Lil. t. 267; Reich. Ic. Crit. tab. 598; Fl. Germ. tab. 349, fig. 777. [Description from Baker, 1892.] — Corm $\frac{3}{4}$ in. diam.; tunics of matted parallel fibres, reticulated upwards. Leaves 3-4, ensiform, $\frac{1}{2}$ -1 ft. long, $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, laxly nerved. Spike lax, secund, 4-8-flowered; outer spathe-valve green, an inch long. Perianth-tube curved, funnel-shaped, $\frac{1}{4}$ - $\frac{1}{2}$ in. long; segments bright purple, an inch long, about equal in length, all connivent when fully expanded; 3 lower with a long claw and white central line. Anthers $\frac{1}{3}$ in. long, equalling the filaments. Capsule turbinate, $\frac{1}{2}$ in. long. Seeds broadly winged.

G. cruentus (Moore in Gard. Chron. 1868, 1138); corm large, globose; stem 2-3 ft. long; produced leaves about 4, ensiform, dark glaucous green, $1\frac{1}{2}$ -2 ft. long, $\frac{3}{4}$ -1 in. broad; spike rather dense, distichous, 6-10-flowered; bracts very large, lanceolate, the lower sometimes 3-6 in. long; perianth bright scarlet; tube $1\frac{1}{2}$ -2 in. long, nearly straight, funnel-shaped in the upper half; upper segments concolorous, obovate-spathulate, obscurely cuspidate, 2-2 $\frac{1}{2}$ in. long, $1\frac{1}{4}$ -1 $\frac{1}{2}$ in. broad; 3 lower about 1 $\frac{1}{2}$ in. long, 1 in. broad, with a large white blotch at the throat with small red spots; anthers lanceolate, reaching halfway up the limb. *Hook. fil. in Bot. Mag. t. 5810; Baker, Handb. Irid. 219.*

G. cuspidatus (Jacq. Ic. t. 257); corm globose; tunics of fine, parallel strands of matted fibres; stems simple, 2-3 ft. long; leaves 3-4, linear, rigid in texture, glabrous, the lowest $1\frac{1}{2}$ -2 ft. long, about $\frac{1}{2}$ in. broad; flowers 4-8, in a lax secund spike; spathe-valves green, lanceolate, outer 2-3 in. long; perianth white or pale pink; tube slightly curved, 2-3 in. long, clavate in the upper third; segments oblong, $1\frac{1}{2}$ in. long, $\frac{1}{4}$ - $\frac{1}{2}$ in. broad, narrowed into a long, wavy point, the three lower with a spade-shaped purple blotch; stamens reaching halfway up the limb. *Ker in Bot. Mag. t. 582; Gen. Irid. 139; Andr. Bot. Rep. t. 219; Red. Lil. t. 136; Baker, Handb. Irid. 205. G. undulatus, Linn. Mant. 27; Thunb. Fl. Cap. i. 206, ex parte. G. affinis, Pers. Syn. i. 45.*

VAR. β , **G. ventricosus** (Lam. Encyc. ii. 727); flowers pink; point of the segments shorter and less wavy. *G. cuspidatus, Andr. Bot. Rep. t. 147; Red. Lil. t. 36. G. carneus, Jacq. Ic. t. 255; Ker in Bot. Mag. t. 591, non Delaroche.*

VAR. γ , **ensifolius** (Baker); whole plant under a foot long; leaves short, rigid, ensiform.

G. dracocephalus (Hook. fil. in Bot. Mag. t. 5884); corm large, depresso-globose; stem simple, about 2 ft. long; produced leaves ensiform, 1-1 $\frac{1}{2}$ ft. long, $\frac{3}{4}$ -1 in. broad, moderately firm in texture; flowers few, arranged in a very lax secund spike; outer spathe-valve lanceolate, green, 2-3 in. long; perianth-tube much-curved, greenish, $1\frac{1}{2}$ -2 in. long; limb $1\frac{1}{2}$ in. long, yellowish-green, minutely grained and spotted with dull purple; upper segments obovate, permanently hooded, $\frac{3}{4}$ -1 in. broad; lower lanceolate, reflexing; stamens reaching near to the top of the segments; anthers lanceolate, less than half as long as the filaments. *Baker in Journ. Linn. Soc. xvi. 176; Handb. Irid. 220.*

G. floribundus (Jacq. Ic. t. 254); corm globose; tunics of matted fibres; produced leaves 3-4, ensiform, 1-2 ft. long; stems 1 $\frac{1}{2}$ -2 ft. or more long including the inflorescence, branched when at all luxuriant; flowers white with a pink tinge, 4-12 in a very lax distichous spike, all ascending; outer spathe-valve oblong-lanceolate, $1\frac{1}{2}$ -2 in. long; perianth-tube nearly straight, $1\frac{1}{2}$ -2 in. long, funnel-shaped in the upper third; segments as long as the tube, obovate-spathulate, deltoid at the tip, the upper $\frac{3}{4}$ -1 in. broad; stamens reaching $\frac{1}{3}$ or $\frac{1}{2}$ -way up the limb. *Ker in Bot. Mag. t. 610; Gen. Irid. 143; Baker, Handb. Irid. 218. G. grandiflorus, Andr. Bot. Rep., t. 118.*

G. grandis (Thunb. Fl. Cap. i. 186); corm globose; tunics of thick, parallel, wiry fibres; stem slender, terete, 1-2 ft. long; leaves 3, superposed, terete, strongly ribbed, firm in texture, the lowest 1-1½ ft. long; flowers fragrant, 2-6 in a very lax secund spike; spathe-valves green, lanceolate, the outer 2-2½ in. long; perianth 2½-3 in. long, with a curved tube funnel-shaped in the upper third; segments yellowish-white, more or less tinged with purplish-brown, especially on the keel, oblong, ½-¾ in. broad, narrowed into a long point; stamens reaching halfway up the limb; capsule oblong, membranous, 1½ in. long. *Klatt in Linnæa* xxxii. 714; *Baker, Handb. Irid.* 202. *G. tristis*, Linn. herb.! *G. tristis*, var. *grandis*, Thunb. Diss. No. 8. *G. versicolor*, Andr. Bot. Rep. t. 19; *Ker in Bot. Mag. t.* 1042; *Gen. Irid.* 135.

G. hirsutus Jacq. Ic. t. 250; Red. Lil. t. 278. [Description from Baker, 1892.] *G. roseus* Andr. Bot. Rep. t. 11. *G. hirsutus* var. *roseus* Ker in Bot. Mag. t. 574. — Corm middle-sized, globose, crowned with a ring of bristles. Leaves 4-5, superposed, ensiform, strongly ribbed, both the sheath and short blade finely hairy. Stem 1-1½ ft. long. Flowers 3-6 in a very lax secund spike; spathe-valves lanceolate, green, lower outer 1½-2 in. long. Perianth bright red, with a curved tube 1½ in. long; segments obovate, cuspidate, as long as the tube, the upper ¾ in., the lower ½ in. broad. Stamens more than half as long as the segments.

G. oppositiflorus (Herb. in Bot. Reg. 1842, Misc. 86); corm large, globose; tunics of matted fibres; produced basal leaves about 4, ensiform, firm in texture, 1-1½ ft. long, ¾-1 in. broad; stem 3-4 ft. long including the inflorescence, often branched; flowers up to 30 or 40, arranged in a distichous spike often a foot



FIG. 6. GLADIOLUS PAPILIO

long; spathe-valves green, lanceolate, acute, thin in texture, $1-1\frac{1}{2}$ in. long; perianth white; tube curved, $1-1\frac{1}{4}$ in. long, slender up to the top; limb horizontal, $1\frac{1}{2}$ in. long, with oblong-spathulate acute segments not more than $\frac{1}{2}-\frac{1}{2}$ in. broad at the middle; stamens half as long as the limb. *Baker, Handb. Irid.* 218; *Bot. Mag.* t. 7292.

G. Papilio (Hook. fil. in *Bot. Mag.* t. 5565); corm middle-sized, globose; tunics of parallel strands of fine matted fibres; produced subbasal leaves about 4, ensiform, glabrous, rigid in texture, $1-1\frac{1}{2}$ ft. long, $\frac{3}{4}-1$ in. broad at the middle; stem 2-3 ft. long including the inflorescence; flowers pale purple, 6-12 in a lax spike; spathe-valves oblong-navicular, cuspidate, the outer $1-1\frac{1}{2}$ in. long; perianth horizontal; tube curved, $\frac{1}{2}$ in. long, broadly funnel-shaped in the upper half; limb $1\frac{1}{4}-1\frac{1}{2}$ in. long; 3 upper segments obovate-spathulate, $\frac{1}{2}-\frac{3}{4}$ in. broad, upper not reflexing; 3 lower oblong-unguiculate, with a large reddish spade-shaped blotch edged with yellow at the throat; stamens reaching halfway up the limb. *Baker in Journ. Linn. Soc.* xvi. 175; *Handb. Irid.* 216.

G. primulinus Baker in *Gard. Chron.* 1890, ii. 122. [Description from Baker, 1892.] —Corm large, globose. Basal leaves 3, ensiform, subcoriaceous, strongly ribbed, the lowest a foot long, $\frac{3}{4}$ in. broad. Stem $1\frac{1}{2}$ ft. long, the upper short and adpressed. Spike lax, secund, 4-5-flowered; spathe-valves lanceolate, green, $1-1\frac{1}{2}$ in. long. Perianth uniform primrose-yellow; tube much curved, an inch long; upper segments obtuse, much imbricated, $1\frac{1}{4}$ in. long; 3 lower smaller. Stamens reaching halfway up the segments.

G. psittacinus (Hook. in *Bot. Mag.* t. 3032); corm very large, depresso-globose; tunics of parallel strands of matted fibres; produced leaves about 4, ensiform, rigid in texture, 1-2 ft. long, 1-2 in. broad; stem 3-4 ft. long including the inflorescence; spike very lax, reaching a foot or more in length; spathe-valves green, oblong-lanceolate, 2-3 in. long; perianth-tube curved, $1\frac{1}{2}-2$ in. long, sub-cylindrical in the upper half; limb about equalling the tube; upper segments obovate, dark crimson, hooded, $\frac{3}{4}-1$ in. broad; lower segments much smaller, reflexing at the top, red and yellow mixed; stamens reaching nearly to the tip of the segments; anthers $\frac{1}{2}$ in. long; filaments about $1\frac{1}{2}$ in. long; capsule large, oblong. *Bot. Reg.* t. 1442; *Reich. Exot.* t. 116; *Baker, Handb. Irid.* 220. *G. natalensis*, Reinw. ex Hook. in *Bot. Mag.* sub t. 3084; *Sweet, Brit. Flow. Gard.* ser. 2, t. 281; *Lodd. Bot. Cab.* t. 1756. *Watsonia natalensis*, Eckl. *Top. Verz.* 34.

VAR. β , **G. Cooperi** (Baker in *Bot. Mag.* t. 6202); perianth-tube $2\frac{1}{2}-3$ in. long; segments more acute.

G. purpureo-auratus (Hook. fil. in *Bot. Mag.* t. 5944); corm large, globose; tunics of parallel strands of matted fibres; leaves ensiform, glabrous, rigid in texture, much shorter than the stem; stem 3 ft. long including the inflorescence; flowers 10-15 in a lax secund spike a foot long; spathe-valves green, oblong-lanceolate, $1-1\frac{1}{2}$ in. long; perianth primrose-yellow; tube much curved, funnel-shaped, under an inch long; upper segments plain, obovate-spathulate, $1\frac{1}{4}-1\frac{1}{2}$ in. long, $\frac{3}{4}$ in. broad; lower obovate-unguiculate, the two inner with a spade-shaped red-brown blotch at the throat; stamens reaching halfway up the limb. *Baker in Journ. Linn. Soc.* xvi. 175; *Handb. Irid.* 216.

G. recurvus (Linn. *Mant.* 28); corm globose, $\frac{3}{4}-1$ in. diam.; tunics of parallel wiry fibres; stems slender, simple, 1-2 ft. long; leaves 3, firm in texture, terete, strongly ribbed, the lowest about a foot long; flowers very fragrant, 2-6, in a very lax secund spike; outer spathe-valve green, lanceolate, $1\frac{1}{2}-2$ in. long; perianth-tube curved, $1\frac{1}{2}-2$ in. long, clavate in the upper third; limb $1-1\frac{1}{4}$ in. long, yellowish-white, much flushed with dark lilac; segments oblong, acute, $\frac{1}{2}$ in. broad; stamens reaching more than halfway up the limb; capsule oblong, membranous, $1-1\frac{1}{4}$ in. long. *Ker in Bot. Mag.* t. 578; non Thunb.; *Baker, Handb. Irid.* 203. *G. punctatus*, Jacq. *Ic.* t. 247. *G. tristis*, var. *punctatus*, Thunb. *Diss.* No. 8. *G. carinatus*, Ait. *Hort. Kew.* i. 64. *G. ringens*, Andr. *Bot. Rep.* tl. 27 and 227; *Red. Lil.* t. 123. *G. odoratus*, Salisb. *Prodr.* 40. *G. violaceus*, Pers. *Syn.* i. 43. *Watsonia recurva*, Pers. *Syn.* i. 43. *G. breynianus*, Ker, *Gen. Irid.* 135. *G. maculatus*, Sweet, *Hort. Brit. edit.* 1, 397; Klatt in *Linnæa* xxxii. 708.

G. Saundersii (Hook. fil. in *Bot. Mag.* t. 5873); corm large, depresso-globose; produced leaves 4-6, ensiform, rigid in texture, strongly ribbed, 1-2 ft. long, $\frac{3}{4}-1$ in. broad; stem 2-3 ft. long including inflorescence; spike very lax, $\frac{1}{2}$ ft. long, 6-8-flowered; spathe-valves green, lanceolate, $1\frac{1}{2}-2$ in. long; perianth-tube curved, $1-1\frac{1}{2}$ in. long, broadly funnel-shaped in the upper half; limb bright scarlet; 3 upper segments concolorous, oblong-spathulate, acute, an inch broad; 3 lower shorter, $\frac{1}{2}$ in. broad, with a great

blotch of white spotted with scarlet at the throat; stamens reaching nearly to the tip of the segments; anthers $\frac{1}{2}$ in. long, half the length of the filaments. (*Baker in Journ. Linn. Soc.* xvi. 176; *Handb. Irid.* 220.)

G. segetum Ker in Bot. Mag. t. 719; Reich. Ic. Crit. t. 600; Fl. Germ. tab. 353, fig. 781. [Description from Baker, 1892.] *G. communis* Linn. ex parte; Sibth. & Sm. Fl. Græc. t. 37. *G. infestus* Biane. *G. italicus* Gaud. *G. inarimensis* Guss. *G. Ludovicæ* Jan. *G. caucasicus* Herb. *Sphærospora imbricata* Sweet.—Corm globose, $\frac{3}{4}$ –1 in. diam.; tunics of matted parallel fibres, reticulated upwards. Produced leaves 3–4, ensiform, 1–1 $\frac{1}{2}$ ft. long, $\frac{1}{2}$ – $\frac{3}{4}$ in. broad, laxly unequally nerved. Stem 1–1 $\frac{1}{2}$ ft. long. Spike lax, 6–10-flowered; outer spathe-valve green, lanceolate, 1–1 $\frac{1}{2}$ in. long. Perianth-tube curved, $\frac{1}{4}$ – $\frac{1}{2}$ in. long; segments 1–1 $\frac{1}{2}$ in. long, bright purple, obovate, obtuse; the upper $\frac{1}{2}$ in. broad, with a short claw; the lateral shorter; the 3 lower as long, with a long narrow claw and white line down the keel. Anthers $\frac{1}{2}$ in. long, exceeding the filaments. Capsule turbinate, $\frac{1}{2}$ in. long, torulose when mature. Seeds brown, globose.

G. sericeo-villosus (Hook. in Bot. Mag. t. 5427); corm large, globose; leaves about 6 in a subbasal distichous rosette, ensiform, glabrous, strongly ribbed, 1 $\frac{1}{2}$ –2 ft. long, $\frac{1}{2}$ –1 in. broad; stem 3–4 ft. long including the inflorescence, clothed throughout with soft, crisped, white, spreading hairs; spike distichous, 20–30-flowered, with a flexuose, densely villose axis; outer spathe-valve oblong-lanceolate, villose, scarious in the upper half; flower bright yellow; perianth-tube curved, funnel-shaped, $\frac{1}{2}$ – $\frac{3}{4}$ in. long; limb rather longer than the tube; upper segments oblong-spathulate, $\frac{1}{4}$ in. broad; lower narrower, unguiculate; stamens reaching halfway up the limb. *Baker, Handb. Irid.* 215.

G. tristis (Linn. Sp. Plant. edit. 2, i. 53, ex parte); corm globose, 1 in. diam.; tunics of fine parallel strands of matted fibres; stems slender, simple, 1–2 ft. long; leaves 3, superposed, terete, with 3–5 much-raised, stramineous ribs, the lower 1–1 $\frac{1}{2}$ ft. long; flowers 3–4 in a very lax secund spike, fragrant; spathe-valves green, lanceolate, 1 $\frac{1}{2}$ –2 in. long; perianth-tube curved, 1 $\frac{1}{2}$ –2 in. long, funnel-shaped in the upper third; limb yellowish-white, slightly flushed on the keel of the segments with purplish-black; segments oblong-spathulate, acute, $\frac{1}{3}$ – $\frac{1}{2}$ in. broad; stamens more than half as long as the perianth-limb; capsule oblong, membranous, an inch long. *Thumb. Diss.* No. 8, ex parte; *Curt. in Bot. Mag.* t. 272; *Jacq. Ic.* t. 243; *Ker in Bot. Mag.* t. 1098; *Gen. Irid.* 136; *Baker, Handb. Irid.* 203. *G. spiralis*, *Pers. Syn.* i. 43; *Red. Lil.* t. 35.

VAR. ♂, **G. concolor** (Salisb. Parad. t. 8); flowers almost concolorous, and a purer white than in the type. *G. tristis*, *Jacq. Ic.* t. 245.

EVOLUTION OF THE GLADIOLUS

There are fifteen species of *Gladiolus* in Europe, Asia Minor, and Persia. These are, according to Baker: *atroviolaceus* Boiss.; *byzantinus* Miller; *communis* Linn.; *halophilus* Boiss.; *humilis* Stapf; *illyricus* Koch; *imbricatus* Linn.; *Kotschyanus* Boiss.; *micranthus* Stapf; *palustris* Gaud.; *persicus* Boiss.; *segetum* Ker; *sintensii* Baker; *tricolor* Stapf; *triphyllus* Sibth. Only a few of these have been cultivated; *G. communis* and *G. segetum*, however, have been cultivated for several centuries. It is not improbable that the Greeks and the Romans used the flowers of native species, gathered from their grain-fields,⁶ in their floral decorations. The plant may even have been cultivated by these peoples.⁷ However this may be, there is no definite record of the time when the plant came into cultivation. The two species just named either grew in Britain or were taken there in early times, and, according to Gerarde (1597), were important garden plants. *G. byzantinus*, the Constantinople corn flag, was introduced prior to 1629.

⁶ Dioscorides says that a purple-flowered gladiolus (probably *G. communis*) grew mostly in cultivated grounds.

⁷ Athenæus says gladiolus was planted on the graves of virgins.

An idea of the garden gladioli of three centuries ago may be obtained from *Hortus Eystettensis* (Besler, 1613), in which six colored figures of gladiolus appear. These are as follows:



Gladiolus Narbonensium
flore purpureo

Gladiolus sylvestris

FROM HORTUS EYSTETTENSIS, 1613
Gladiolus Narbonensis
flore incarnato

FIG. 7. GARDEN GLADIOLI THREE CENTURIES AGO

- Folio 10 II. *Gladiolus sylvestris* Cordi (*Victorialis rotunda*).
Runde Sigwurz mit rother blumen.
A small slender plant bearing three flowers on the spike.
- III. *Gladiolus Narbonensium flore purpureo*.
Schwertelbrauner.
A spike bearing nine flowers is shown.

IV. *Gladiolus Narbonensis flore incarnato.*
Leibsarb Schwertel.

A spike bearing six flowers is shown.

Folio 12

I. *Gladiolus Italicus flore rubro.*

Roth Welsch Schwertlilien.

A five-flowered spike is shown.



FROM HORTUS EYSTETTENSIS, 1613

Gladiolus Hispanicus
flore albo

Gladiolus Italicus
flore rubro

Gladiolus Narbonensis flore incarnato, intensiore, seu magis roseo

FIG. 8. GARDEN GLADIOLI THREE CENTURIES AGO

II. *Gladiolus Hispanicus flore albo.*

Weiss Spanisch Schwertlilien.

A seven-flowered spike is shown.

III. *Gladiolus Narbonensis flore incarnato, intensiore, seu magis roseo.*

Leibsarb Narbonische Schwertlilien.

The flowers shown in folio 10 appear to belong to different species. Ker identifies Figure 11 with *G. imbricatus* Linn. and Figures 111 and 1v with *G. communis* Linn. The plants shown in Figures 11 and 111 of folio 12 are probably of the same species, possibly *G. segetum*, while Figure 1 belongs to a second-flowered species.

Ray (1686-1704) writes of the corn flag as of no great esteem, and only consents to admit the plant to the flower garden because the flowers bloom at a season — in June and July — when there are not many other flowers. He mentions *Gladiolus byzantinus*, *G. flore suave rubente*, and *G. flore alba*, and names three other commoner varieties — two French corn flags, one with ash-colored and the other with red flowers, and the Italian corn flag “that beareth saddei red flowers on both sides of the stalks.” He says further that *G. byzantinus* is somewhat tender and should be protected, but the others are hardier.

Miller (1731) describes the following species:

1. *Gladiolus utrinque floridus*. C. B. P.⁸ Cornflag with Flowers on both Sides the Stalks.
2. *Gladiolus carnei coloris*. Swert. Flor.⁹ Flesh-colour'd Cornflag.
3. *Gladiolus floribus uno versu dispositis, major, floris colore purpureo-rubente*. C. B. P. Great Cornflag, with reddish-purple Flowers rang'd on one Side the Stalk.
4. *Gladiolus major Byzantinus*. C. B. P. Great Cornflag of Constantinople.
5. *Gladiolus utrinque floridus, floribus albis*. H. R. Mons.¹⁰ Cornflag with white Flowers rang'd on each side the Stalk.
6. *Gladiolus maximus Indicus*. C. B. P. The largest Indian Cornflag.

In a later edition (1754) he adds the following:

7. *Gladiolus floribus uno versu dispositis, major and procerior, flore candicante*. C. B. P. Greater and taller Cornflag, with whitish Flowers rang'd all on one Side.
8. *Gladiolus floribus uno versu dispositis, minor and humilior*. C. B. P. Smaller and lower Cornflag, with Flowers ranged on one Side.
9. *Gladiolus minor, floribus uno versu dispositis incarnatis*. H. L. Smaller Cornflag, with flesh-coloured Flowers ranged on one Side.
10. *Gladiolus utrinque floridus, flore rubro*. C. B. P. Cornflag with red Flowers on both Sides.
11. *Gladiolus floribus uno versu dispositis, minor*. C. B. P. Smaller Cornflag, with Flowers ranged on one Side.

It is probable that among the latter species nos. 7, 8, 9, and 11 are varieties of no. 3, and that nos. 5 and 10 are varieties of no. 1. Miller says that all these sorts of corn flag are

propagated by their tuberose Roots, which the first, second, and fifth Sorts produce in great Plenty; so that in a few Years, if they are suffer'd to remain unremov'd, they will spread very far, and are hardly to be intirely rooted-out, when they have once gotten Possession of the Ground. . . . These roots may be taken up in July, when their Leaves decay, and may be kept out of the Ground until October.

⁸ C. B. P. = Casper Bauhin's *Pinax*.

⁹ Swert. Flor. = Swertius' *Florilegium*.

¹⁰ H. R. Mons. = Catalogue of Royal Garden at Montpellier.

The third and fourth Sorts are the most valuable, producing taller Stalks, and fairer Flowers: nor are these so apt to increase: which renders them fitter for the Borders of a Flower-garden: so that since these have been introduced, and become common, the other Sorts have been rejected, unless in some old Gardens, or for large Wilderness-quarters, where they will grow better than the two last-mentioned.

The Indian Cornflag is tender, and must be preserved in a warm Green-house, or a moderate Stove, during the Winter-season. These Roots should be planted in pots filled with a light sandy soil. The best time to transplant them is any time from May.....till September.

A study of these species — *G. communis*, *G. segetum*, and *G. byzantinus* — leads to the conviction that the greatest possible advance had been made as early as the time of Parkinson. No further improvement in garden gladioli was made for about one hundred and fifty years, when other species were introduced.

It is not definitely known which of the African species from the Cape of Good Hope was first introduced into Europe. The evidence points to *G. angustus* and *G. tristis*, since they are mentioned by Breynne (1739b) and the former was figured by Linnaeus in *Hortus Cliffortianus* (1737). *G. tristis* was flowered by Miller in 1745, and *G. alatus* and *G. recurvus* (the latter under the name *Breynianus*) were also, according to Ker, known to Breynne. These were followed by *G. Milleri*, 1751, *G. involutus*, 1757, and *G. undulatus*, 1760.

Soon a great many irids from the Cape were described under the genus *Gladiolus*, but later a large proportion, if not the majority, of these were transferred to new genera. This, together with the confusion concerning the identity of the species, makes it quite impossible to fix with certainty the date of introduction of these older forms. For example, Lamarck's *Encyclopedia* (1786) describes thirty-two species, of which only eight — *alatus* Linn., *angustus* Linn., *communis* Linn., *imbricatus* Linn., *luteus* Lam., *montanus* Linn., *recurvus* Linn., and *tristis* Linn. — are now recognized as true species of *Gladiolus*, most of the others being now included in *Babiana* and *Watsonia*.

G. blandus was introduced in 1774, *G. cardinalis* and *G. floribundus* in 1789. These species gave the first impetus to gladiolus improvement.

The attention of amateurs and gardeners appears to have been directed toward the early-flowering species, which yield flowers during the early summer when planted in the fall. This was possible because many of the species were fairly hardy in England and the Low Countries. Such species as *cardinalis*, *communis*, *blandus*, and *tristis* were especially adapted for garden planting. The plants seeded freely, and since cross-fertilization is easily accomplished in gladioli it is not surprising to find a number of new forms soon appearing in the gardens.

The first important hybrid appears to have been *G. Colvillei*, or Colville's corn flag, which was raised in 1823 at Colville's Nursery, Chelsea, England.

from seeds of *G. concolor* fertilized by the pollen of *G. cardinalis*. *G. concolor* is now regarded by botanists as a variety of *G. tristis*. The flowers were bright scarlet, with lanceolate blotches of white on the three lower segments. The flowers were fragrant, which points to *G. tristis* as one of the parents. This hybrid is still in the market and is, at least in America, the most important variety for growing under glass.

Although the production of *G. Colvillei* was the first important achievement in the improvement of gladioli, it was not the result of the first efforts in this field. The earliest attempts to hybridize gladioli appear to have been made by the Honorable William Herbert, Dean of Manchester, early in the last century. In 1818 he wrote the Horticultural Society of London as follows (Herbert, 1820:196):

Having raised two beautiful and hardy species of *Gladiolus*, by impregnating *Cardinalis* with *Blandus* and *Blandus* with *Cardinalis*, I propose to call one *Gladiolus Blando-Cardinalis*, and the other *Gladiolus Cardinali-Blandus*. These two new species of *Gladiolus* which have flowered make seed freely. I have also mules from *Gladiolus tristis* impregnated by the large flowering blue *Gladiolus recurvus*.
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Later, in 1819, in his classic paper *On the Production of Hybrid Vegetables* (Herbert, 1822a:44-45), he wrote:

Of Gladioli I possess the following mules: *G. blando-cardinalis*, *G. cardinali-blandus*, *G. angusto-blandus*, *G. tristi-blandus*, *G. floribundo-blandus*; *G. cardinali-angusto-blandus*; *G. tristi-hirsutus*; *G. ringenti-tristis*, and *G. versicolore-hirsutus*. I have this year seeds from further intermixtures, and mules may probably be obtained with endless variety of colour. These mules flower most beautifully in the open border, in a mixture of sand and peat, in patches amongst the Azaleas. It is perhaps best to take up the bulbs, and dry them, when the seed is ripe; but I have left African Gladioli unmoved for several years, in the border. I have never seen the least approximation to each other in the natural seedlings of *G. blandus*, *G. tristis*, *G. cardinalis*, *G. hirsutus*, and *G. recurvus*.

Dean Herbert was an enthusiastic cultivator of gladioli, as well as an authority on the Cape bulbs. The following prophecy, written in 1820 (Herbert, 1822b), will be of interest to all lovers of gladioli:

I am persuaded that the African Gladioli will become great favorites with florists, when their beauty in the open border, the facility of their culture, and the endless variety which may be produced from seed by blending the several species, are fully known, nor will they be found to yield in beauty to the Tulip and Ranunculus.

In 1837 he wrote as follows:

The hybrid Gladioli, of which a large portion are sufficiently hardy, flower about the same time as the roses. These hardy crosses are between *G. Cardinalis*, *blandus*, *carneus*, *inflatus*, *angustus*, and *tristis*, and they vary with every shade of colour from white to scarlet, rose, coppery, and blackish purple, and some are exquisitely speckled in consequence of the cross with *tristis*. The beautiful crosses with *hirsutus*, *recurvus*, and *versicolor* are more delicate plants, and do not succeed well in the border.

Ten years later, in the Journal of the Horticultural Society of London, he wrote (Herbert, 1847):

Forty years ago I first crossed the large and brilliant scarlet and white *Gladiolus cardinalis* with the smaller, but more freely flowering, *G. blandus*, which sports with

white, purple, and rose coloured flowers, and (under the name of *carneus*, which was in truth rather a local variety of the same) of a coppery flesh-colour. The result was a fertile breed of great beauty, of which the prevailing colour was purplish roseate. Crossed again with *cardinalis* it yielded florid plants, scarlet, copper-coloured, rose-coloured, white, and purple with endless variation. By a cross of the first mule and of *cardinalis* itself with *G. tristis*, of which the flower is pale yellow with brown specks, deeper tints and rich speckling were introduced, with a difference in the foliage and seeds, the seed of *G. tristis* being smaller and longer, its leaves rigid and quadrangular, the transverse section exhibiting a cross. The seeds of *cardinalis* are like those of *blandus*, but larger. There can scarcely be two species more dissimilar than *cardinalis* and *tristis* in any genus which has the form of the perianth uniform, the latter having such remarkable leaves, narrow, rigid, and erect, a slender stem, with night-smelling flowers, and the former very broad semi-recumbent glaucous foliage, and an inclined half-recumbent stem with large scarlet and white blossom; yet the produce of these intermixed is fertile, and where the third species *blandus* has been also admitted into the union, it is fertile in the extreme (incomparably more so than the pure *G. cardinalis*), and by that triple cross the tall strong *Gladiolus oppositiflorus* of Madagascar has also produced offspring, which, though not disposed at present to make seed freely, has produced some this year. Again, the first of these mules was fertilized by *G. hirsutus* (known at the Cape by the name *roseus*), a plant with flowers straighter than usual in the genus, and strongly scented, the leaves hairy and margined with red. That cross has not as yet proved fertile. The same *G. hirsutus* was crossed by Mr. Bidwell at Sydney, where the Cape bulbs thrive more freely than here, with *G. alatus* (which Ecklon wished to turn off into a genus *Hebea*), having hard rigidly ribbed leaves, a short stem, and orange flowers. The cross-bred plants flowered here last autumn, being intermediate in foliage and flower. The only opportunity I have had of crossing *G. alatus* with the first-named mules was defeated, notwithstanding much precaution, through the introduction of pollen by the humblebees, which are dangerous marplots to such experiments.

The second important hybrid was *G. ramosus*, which, according to the *Revue Horticole* for 1838, was obtained at Haarlem from seed of *G. blandus*, or "*floribunda*." It was first flowered in France by M. Rifkogel in 1838. Meanwhile (in 1835) it had been introduced into England and a figure of it was published in *Paxton's Magazine of Botany* (volume 6 [1839], pages 99 and 100). The flower was openly funnel-shaped, bright red with deep blotches at the base of the three lower segments, and resembled *G. blandus*. The plant was tall, with heavy, broad leaves. Although it was not entirely hardy, requiring a heavy mulch for protection, it was necessary to plant it in the fall in order to get results. Nevertheless the varieties of this type, owing to the fact that they flowered later than those of *G. blandus* and *G. cardinalis*, formed an important group for at least the next twenty years and have not yet entirely disappeared from European lists.

A number of hybrids were obtained by crossing *G. floribundus* and *G. ramosus*. Some of these, figured by color plates in works of the time, were *Triomphe de Louvain* (Carolus, 1845), *Countess Coghén* and *Madame de Vilain* (Rosseels, 1847), *Leopoldii* (Carolus, 1848), and *Mademoiselle Sosthenie* (Truffaut fils, 1848).

Up to 1840, in spite of the efforts to improve the gladiolus and notwithstanding the amount of variation that had resulted from these efforts, the plant remained little more than a plant for the attention of interested

amateurs. Before that time it does not appear to have received general attention or to have been an important plant in the seed or nursery trade.

In the following table the names of varieties of gladioli are given, with their prices, as taken from advertisements of Messrs. T. & C. Lockhart, 156 Cheapside, London. The table shows the varieties cultivated in England prior to the introduction of *G. gandavensis*.

Species or variety	Year					
	1837	1838	1839	1840	1841	1842
	Per dozen	Per dozen	Per dozen	Per dozen	Per dozen	Each
	s. d.	s. d.	s. d.		s. d.	s. d.
albus	4-0	4-0	4-0	.....	1-0	.....
byzantinus	2-0	3-0	3-0	.....	2-6	0-2
cardinalis inflatus	5-0	6-0	5-0	.....	6-0	0-6
psittacinus	3-0	.....	2-6	.....	2-0	0-3
	Each	Each	Each	Each	Each	Each
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Colvillei . . . . .	.....	.....	.....	2-0	2-0	1-0
floribundus	1-4	1-0	.....	.....	0-6	1-0
salicatus . . . . .	.....	1-0	2-6	2-0	2-6	1-6
Herbertii . . . . .	.....	.....	.....	2-0	3-6	2-0
hirsutus . . . . .	.....	2-6	2-6	.....	2-6	.....
inflatus blandus . . . . .	.....	.....	.....	.....	.....	1-6
insignis . . . . .	.....	.....	.....	15-0	15-0	10-0
Loddigesii . . . . .	.....	.....	.....	5-0	5-0	3-6
praecox . . . . .	.....	1-0	2-6	.....	2-6	1-0
roseus . . . . .	.....	1-0	2-6	.....	2-6	1-6
tristis . . . . .	.....	1-0	1-6	.....	1-6	1-0
trimaculatus . . . . .	.....	1-0	2-6	2-0	2-6	1-0
ramosus . . . . .	.....	20-0	15-0	12-6	5-0	5-0

At this time came the real starting point of the modern garden gladiolus, in *G. gandavensis*, sent out by Louis van Houtte in 1841. This gladiolus originated with M. Beddinghaus, gardener to the Duc d'Arenberg, who decided to produce hybrids between *G. psittacinus*, *G. floribundus*, *G. ramosus*, and *G. cardinalis*, all of them tall, showy species. He obtained seed in 1837, and in 1839 and 1840 he exhibited his seedlings in flower at Enghien. A seedling, a hybrid between *G. psittacinus* (*G. natalensis* Reinw.) and *G. cardinalis*, was admired by those who saw it. M. Van Houtte purchased it and introduced it through the medium of his catalog. Later he published a color plate of it in his *Flore des Serres*, with the following description by Lemaire (1846b): "Le *Gladiolus gandavensis* a le port et l'inflorescence du *G. natalensis*, mais dans des proportions plus grandes, le coloris du *G. cardinalis*, mais plus riche et plus varié."

This hybrid created a furor in the gladiolus world, and the interest in the plant steadily grew after this form was introduced. It was soon followed by *G. gandavensis* var. *citrinus*, a citron yellow flower having a red stripe down the middle of each of the three lower segments.

Dean Herbert, who at this time had had long experience in hybridizing gladioli, doubted the parentage of *G. gandavensis* as given by M. Van Houtte. He said (1837:365): "I have not succeeded in obtaining any cross, on the correctness of which I can depend, by admixture with *Gladiolus psittacinus* (Nathalensis), and I do not believe that it will breed with any of the above" (referring to *G. cardinalis*, *blandus*, *carneus*, *inflatus*, *angustus*, *tristis*, *hirsutus*, *recurvus*, and *versicolor*).

It appears that in the discussions of the time *G. floribundus* was confused, at least in commercial circles, with *G. oppositiflorus* — a not unnatural result when it is considered that the true plants are closely allied botanically. Both are allied to *G. blandus*. The flowers of the two first named are white or only tinged with pink; and considering the number of flowers produced on a spike, it is reasonable to suppose that these species would be used in crossing. In fact there is evidence of *G. floribundus* having been used. Among the first of its hybrids were those of Mr. Cole, gardener for Mr. Willmore at Oldford, England, who sent out the following varieties in 1850:

Willmoreanus, a hybrid between *G. gandavensis* and *G. floribundus*, creamy white, the three upper divisions streaked delicate rosy purple.

Oldfordiensis, delicate salmon color marked with purple. Flowers large.

Roseo-purpureus, deep rosy red, marked with deep purple-red. Flowers of medium size. Two years later Wellington, a deep orange-red variety, was sent out from the same source.

The record is not clear as to *G. oppositiflorus* unless the plant used by Mr. Cole was really this species. However one may regard the statements concerning the origin of *G. gandavensis*, there is no escaping the conclusion, after studying present-day varieties of this group, that *G. oppositiflorus* either was one of the parents of the original hybrid or has been used in hybridizing with it. Without herbarium specimens of the first varieties of *gandavensis*, it is of course difficult to determine whether they exhibit any characteristics of *G. oppositiflorus*. On examination of the colored figures of this form, it would seem as though the distichous arrangement of the flowers on the spike was apparent from the beginning. Paxton (1844) figures *G. gandavensis* and gives a botanical description wherein he states that it is distichously spicate. Although this is placed in that part of the description referring to the genus, the author must have known that most of the species of *Gladiolus* have secund spikes.

among them being *G. cardinalis* and *G. psittacinus*, the reputed parents of *G. gandavensis*. The evidence is strongly in favor of the idea that *G. gandavensis* is a hybrid between *G. psittacinus* and *G. oppositiflorus*.

About this time appeared *G. brenchleyensis*, raised by Mr. Hooker, of Brenchley. The earliest record (1848) of this gladiolus states that it is a hybrid between *G. psittacinus* and *G. floribundus*, but since then it has usually been considered as a form of *G. gandavensis*. Whatever its origin, it ranks next to *G. Colvillei* in being the oldest of existing types of gladioli.¹¹

Prior to 1850 — except for the work of Dean Herbert, whose breeding of gladioli was perhaps more scientific than practical — there had been no sustained effort in the improvement of the gladiolus. Every flower that has won an important place has had one or more great geniuses to develop it and thus make it known to plant lovers. M. Eugène Souchet, gardener for Napoleon III at Fontainebleau, was the greatest of the many breeders of gladioli. He began his labors about 1850 and continued them until shortly before his death in 1880. It is quite probable that he used *G. floribundus* and *G. ramosus* in crossing the varieties of *G. gandavensis*, but such was his ability as a breeder that his varieties took foremost rank at once and maintained the lead throughout his life. The work was then carried on by his nephews, Messrs. Souillard and Brunelet.

It must not be inferred that Eugène Souchet had a clear field as a gladiolus breeder, even in France, for others were at work. M. Courant, of Poissy, raised and introduced such varieties as Docteur Marjolin, Madame Thibaut, Keteleer, M. Loyre, in 1855, and Claire Courant, Keteleeri, Miniatus, in 1858. M. Truffaut fils, who worked much with forms of *G. ramosus*, produced in that section the following varieties: Mademoiselle Sosthenie, a famous hybrid between *G. ramosus* and *G. floribundus*, in 1848; Bernard de Rennes and Madame Bertin, in 1850; Madame Vilmorin and Imperatrice Eugénie, in 1855; Comtesse de Saint Marsault, Arc-en-ciel, Madame Hardy, President Decaisne, in 1858; and Comte de Paris, Marguerite Regaud, Napoleon III, in 1860. Among the *G. psittacinus* x *gandavensis* hybrids produced by M. Truffaut were Madame Souchet, Madame Truffaut, and Charles Rouillard, sent out in 1855. M. Domage, of Montrouge, offered Premices de Montrouge, in 1858, Eugène Domage, Mademoiselle Marsault, Solferino, in 1860, Solfaterre, in 1861, and Madame Domage, in 1862. A. Malet, of Plessis-Picquet, introduced Antiope, Madame Marc Caillard, Madame Place, Madame Vilmorin, in 1858, and Anacreon Cardinal, M. Morel, Gustave Malet, in 1861. M. Duval, of Petit Bicêtre, placed before the public Madame Duval, M. Leroy, and Ernest Duval, in 1862. Eugène

¹¹ *G. ramosus* is regarded as a group of which the original form is probably lost.

Verdier, of Paris, sent out Eugénie Verdier, Madame Eugène Verdier, Olympe Lescuyer, and Victor Verdier, in 1858.

A few years after M. Souchet began the improvement of gladioli, an event occurred which had far-reaching results — if not politically, at least in the history of the gladiolus. This was the visit of Queen Victoria to Fontainebleau in August, 1855. During her visit the flower borders were enlivened with cut spikes of gladioli thrust in vases of water among the common border plants. The result is best described in the words of a writer of the time (Anonymous reference, 1862):

Few flowers have made in so short a space of time such rapid progress in public favour as the *Gandavensis* varieties of the gladiolus. The French were beginning to draw our attention to the bulbs, and new varieties were reaching us from the other side, when our gracious Sovereign gave a great impulse to their culture by taking them under her special patronage. Their being placed on the royal table led the frequenters of the Court to follow the example set them, and a demand almost unprecedented in the history of flowers has arisen. Fortunately they increase very rapidly, and hence they are being generally distributed over the country; and before this unhappy war broke out in America were being eagerly sought for there, for one Paris firm this time last year was looking out for 30,000 bulbs to supply one order.

English breeders had not kept pace with their brethren in Belgium and France, and with the exception of the achievements of Dean Herbert and Mr. Cole there is little to record until about 1859 or 1860, when John Standish began to grow seedlings. He continued the work for several years. Many of his varieties were figured by color plates in the floral magazines of the time, but inasmuch as he was not given full credit for his efforts attention should be called to the great number of varieties originated by him. Among these were Adam Bede, Adele Souchet, Agnes, Alice Gray, *Alice Wilson,¹² Aurelian, Bacchus, Basil, Beauty of Bagshot, Belle of Bagshot, Blair Athol, Brian Boru, Bridesmaid, Carlotta Grisy, Carminata, Caroline, Castor, *Charles Davis, Clara, Colleen Bawn, Colonel Hood, Cordelia, Daphne, Diana, Dr. Blount, Dr. Hogg, Donald Beaton, Don Juan, Duchess of Sutherland, Earl Carlisle, Edith Dombtrain, *Eleanor Norman, Elfin, Etna, Eugène Domage, Excelsior, Garibaldi, General Cabrera, General Leë, Goldfinder, Guido, Harlequin, Herr Rosenberg, Ivanhoe, John Leach, *John Standish, Joseph Maston, Juliet, Kathleen, Ketterii, *Lady Alice Hill, Lady Caroline Legge, Lady Emily Seymour, Lady Marshall, Lady M. Hood, Lady Morgan, Lemonade, Lord Clyde, Lord Kenlis, Lord Shaftesbury, Lucy Neal, Mlle. Patti, Minerva, Miss Foster, Miss Glegg, Miss Graham, Miss Howell, Miss Ingram, Mr. Duffield, *Mr. J. W. Lane, Mr. Menzies, Mr. Rucker, Mrs. Dix, *Mrs. Dombtrain, Mrs. E. Nott, Mrs. Hogg, Mrs. Menzies, *Mrs. Moore, Mrs. Peach, *Mrs. Reynolds Hole, Mrs. Ridley Hunter, Mrs.

¹² The varieties marked with an asterisk have been figured by color plates in the *Florists' Magazine* or similar publications.

Siddons, *Mrs. Standish, Mowbray More, Norma, Oberon, *Our Little Lucy, Poniatowski, Prime Minister, *Randle Jackson, Reine Victoria, Reverend Joshua Dix, Robin Hood, Rose of England, Samuel Weymouth, Scottish Chief, Senior Jackson, Sir Isaac Newton, *Sir James Clarke, Sultane, Susan Ingram, The Caliph, The Cardinal, The Colonel, The Dauphin, The Ensign, Thurza, Tom Moore, Viola, Whipper-in, William Menzies.

These were excellent exhibition varieties, equal if not superior to those sent out in France; but it seems that the conditions were not so favorable for their multiplication, and thus the varieties were never generally distributed and consequently in a few years were lost. Later Mr. Standish moved to Ascot, where he again took up the breeding of gladioli, producing some *brenchleyensis-cruentus* hybrids.

Meanwhile J. Sladden produced some seedlings of merit — Hector, Lord Clyde, Prospero, and Volunteer — which won the first prize of the Royal Horticultural Society in 1863. Although the efforts of Standish served to promote to a certain extent the popular interest in gladioli through exhibitions, there appeared simultaneously with him one who may be regarded as the Souchet of England, James Kelway. Kelway, establishing himself at Langport under different conditions and with a keen judgment of the requirements demanded of new seedlings, was successful; and his successors have maintained the high reputation of the firm for high-grade gladioli. Kelway sent out his first varieties in 1866.

The species *purpureo-auratus*, introduced in 1870, was found to be perfectly hardy at Nancy, France. Victor Lemoine discovered after a test of two or three years that original corms had multiplied so as to form good-sized clumps. The varieties of *G. gandavensis* had not proved successful in the soil at Nancy, and so, very naturally, Lemoine conceived the idea of hybridizing the hardy species with the more brilliant-flowered garden type. He procured some of the best varieties of *G. gandavensis* and used pollen from them on his *G. purpureo-auratus* plants in 1875. The result was three seedlings, of which two were afterward named and the third was suppressed because its colors were not desirable. The hybrids proved to be hardy, like the female parent. Lemoine says that the seedlings were identical in habit, hardiness, height, size and form of flowers, and size and form of the blotches on the lower segments, which were purple bordered with yellow. The named varieties were distinguished by the general color of the corolla, which in *G. Lemoinei* was rosy white and in Marie Lemoine was straw color. These varieties were put on the market in 1880; in 1882 five more varieties were offered, and in autumn of the same year seven varieties were added to the list. In 1881 the English journal *The Garden* called attention to a similar hybrid, called *G. pur-*

purco-auratus hybridus Froebeli, which very much resembled the variety Marie Lemoine.

Other plant breeders used the *Lemoinei* varieties to cross with the best varieties of *G. gandavensis*. Among these producers were: Deleuil, of Marseilles; Trefoux, of Auxerre; Torcy-Vaunier, of Melun; Souillard and Brunelet, of Fontainebleau; Haage & Schmidt, of Erfurt; and Krelage, of Haarlem.

Although developed simultaneously with *G. Lemoinei*, the hybrid *gandavensis* x *Saundersii* — produced by Herr Leichtlin and known as *G. Leichtlinii* and later as *G. Childsii* — was not generally distributed until after *G. nanceianus*. When the stock of *G. Leichtlinii* passed into the hands of M. Godefroy-Lebeuf, it is said that he sold mixed corms but did not name any of the seedlings of this class. Having purchased some of the stock and having also some corms from Herr Leichtlin, M. Lemoine was aware of the improvement shown in this group and therefore was led to undertake the crossing of *G. Lemoinei* and *G. Saundersii* which resulted in producing *G. nanceianus*. *G. Childsii* (formerly called *G. Leichtlinii*) seems not to have interested European growers, probably because of their interest in the fine varieties of M. Lemoine. In America, on the other hand, the *Childsii* varieties found favor, and through the efforts of American cultivators the flowers have been improved in substance. M. Froebel, of Zurich, in 1889 sent out *G. turicensis*, a variety produced by crossing *G. Saundersii* with *G. gandavensis*, which is the same cross as that made by Herr Leichtlin and therefore has been regarded as the same as *G. Childsii*.

The *purpureo-auratus-gandavensis* hybrids, known in horticultural literature as *G. Lemoinei*, were crossed on *G. Saundersii* (introduced in 1872) by M. Lemoine in 1883. The result was four seeds from which the seedlings afterward named President Carnot and Maurice de Vilmorin were chosen in 1885. These varieties were remarkable for their large flowers and numerous dots of color. The originator claimed that this class was also hardy. The first varieties (nine in number) from this cross were introduced in 1889, and these with other seedlings were shown at the Universal Exposition in Paris in that year. This group has been known as *G. nanceianus*.

G. Victorialis was introduced in 1893 by Dammann & Co., of San Giovanni a Teduccio, near Naples. This variety was described as a hybrid between *G. byzantinus* and *G. cardinalis*, or between a European and a Cape species, and, if correct, it was the first hybrid of such parentage on record. The firm's catalog for 1893 stated that the variety was hardy and belonged to the early-flowering class or group. In habit the plant was intermediate between the parents; the flowers were pink or dark red, and the inner segments were striped as in *G. cardinalis*. The season was about the middle of April and the flowers were somewhat scented.

The class was recommended for market and for cutting, and especially for hybridizing. Five varieties were offered, as follows: *Amathusia*, *Amphitrite*, *Andromeda*, *Penelope*, *Eris*. It appears that specimens were sent by Mr. Sprenger, of the firm of Dammann & Co. to J. G. Baker, who described this new gladiolus in the *Gardeners' Chronicle* of May 20, 1893, but ascribed it to a cross between *G. communis* and *G. cardinalis* or *G. Colvillei*. Endicott (1897) says that *G. Victorialis* is not so good as *G. byzantinus*, and that he saw no evidence of African blood. Apparently the class was of little value, since it seems not to have been cataloged by the introducers for more than a year.

When the above-named specimens were sent by Mr. Sprenger to Mr. Baker there was included a *papilio-gandavensis* hybrid, which was described. Later Mr. Sprenger sent six hybrids, as follows: *communis* x *Colvillei*; *communis* x *Colvillei albus*; *communis* x *cardinalis*; *ramosus* x *cardinalis*; *papilio* x *cardinalis*; *papilio* x *angustus*. These were not described, and the writer could not ascertain whether or not any of them found their way into the market. They are of interest to botanists and plant breeders in view of Dean Herbert's opinion regarding the possibility of uniting the species of Europe and South Africa.

Another interesting class of gladioli was the *Glaïeuls à épi rond*, the first varieties of which, *Triomphe de Paris* and *Mme. Casimir-Perier*, were introduced by Cayeux et Le Clerc in 1902. These gladioli with flowers all around the stem were a novelty, and the following additional varieties were sent out: *Eureka* (Lem., 1903); *Triomphe de Nancy* (Lem., 1905); *Caprice* (Lem., 1906); *Couronnement* (Lem., 1908). They were of passing moment, however, and have almost disappeared.

In 1905 Roger de la Borde exhibited his Giant-flowered Hybrids, which he claimed were the result of crossing several species with a very severe selection of the seedlings. The flowers were large, some of the varieties having flowers twenty-two centimeters in diameter, while the American varieties under the same conditions were only thirteen centimeters. The colors were delicate. The spikes were furnished with from four to six flowers open at one time.

G. primulinus, which flowered at Kew in 1890, has in recent years been used in hybridizing with other races and species of gladioli. This species seems to have come into commercial notice in France in 1905, and in the United States through Thorburn in 1908. Cayeux et Le Clerc obtained a number of seedlings of *G. primulinus*, using different and more or less yellow-flowered varieties of *G. Lemoinei*, *G. nanceianus*, and *G. gandavensis*. They also made reciprocal crosses. Crosses with such *gandavensis* varieties as Hohenzollern and Safrano gave the best results. Seventy per cent of the seedlings were yellow and hooded, as in the type. The *nanceianus* crosses gave less pure colors, the flowers being striped with shades of

red and in several cases with novel shades of copper or coppery bronze. With the *Lemoinei* variety Henry Lemoine, the seedlings ranged in color from almost pure yellow to pure yellow, but retained the pronounced hooded upper petal.

These first hybrids were crossed with the largest yellow-flowered *gandavensis* varieties. The resulting hybrids, flowering in 1909, had large, well-open flowers, in colors ranging from clear yellow to golden yellow. In addition, distinct salmon and chamois shades appeared, which offered a field for further work in gladiolus development.

Langprim gladioli is the name given by Kelway for his strain of *primulinus* hybrids produced by crossing with varieties of *G. Kelwayi* and *G. gandavensis*. *G. primulinus* used on the *Kelwayi* varieties has thus far given the best results. The seedlings show marked *primulinus* characters, especially in regard to color and form, giving a series of colors ranging from lemon-white to orange, suffused with red.

Lemoine evidently began experimenting with *G. primulinus* soon after its introduction into Europe, and in the autumn of 1908 he offered *G. primulinus major*, *G. primulinus maculatus*, and *G. primulinus salmonensis*. In 1910 he sent out *G. primulinus concolor* and *G. primulinus erectus*.

Recent development in the gladiolus is marked by the attempt of the French gladiolus breeders to produce a type that will flower in the interval between the early dwarf varieties, *G. Colvillei*, *G. communis*, and *G. segetum* on the one hand, and *G. nanceianus* on the other.

About 1902 M. Porcher-Dionneau, of Ponts-de-Cé, conceived the idea of crossing *G. nanceianus* with *G. Colvillei* to produce an earlier-flowering strain. Each year he selected from the seedlings those that flowered first but that retained the rich coloring and large size of *G. nanceianus*. He exhibited his varieties in 1910 and they are figured in the *Revue Horticole*, where it is stated on M. Porcher-Dionneau's authority that, when planted with *G. Colvillei* in March, the *Glaieuls hâtifs Ponts-de-Céais* flowered at the same time, but the flowers measured from sixteen to twenty-two centimeters in diameter and had the rich colors of the *nanceianus* class.

Cayeux et Le Clerc, in 1913, introduced *G. vitriacensis*, a hybrid between a *Lemoinei* variety and some of the early dwarf hybrids known as *G. nanus*. The plant grew one meter high and bore medium-sized flowers having the characteristic blotches of the dwarf type. The period of bloom was in the interval between the season of the early-flowering varieties and the late-flowering group.

These results indicate that where the dwarf types are hardy it is possible to have gladioli in the open ground from April or May until the latest of the tall late varieties are over — a period of six months.

The parentage of some of the principal hybrid species is shown in the following table:

HISTORY OF GARDEN SPECIES

Gladiolus alatus Linn. (Wing-flowered Gladiolus) is a native of the Cape of Good Hope and was among the first species introduced into Europe. The corm is round, compressed, and small, about the size of a small crocus. The leaves are from three to four in number, narrowly sword-shaped, somewhat leathery, without a middle nerve but streaked with parallel fine furrows. The stem varies from a few inches to a foot in height, and bears from five to ten flowers. The segments are very unequal, the uppermost being one-half the width of the two lateral ones and the lower segments narrower. The flowers are bright red, and small like those of sweetbrier. Ker thinks that presumably the specific name was suggested to Linnæus by the extended wing-like appearance of the upper lateral segments of the corolla, rather than by the somewhat winged stems. Although it is one of the so-called hardy species, it endures but little cold; yet, on the other hand, it cannot be kept out of the soil except for a short period. According to Ker it is propagated very easily by seeds and cormels, although it is not so easily brought into flower, which he attributes to lack of sufficient heat.

This species is common in the western coast districts of South Africa, where it flowers in the spring. In the south it inhabits the low hills and flats; in the north, due to the less amount of rainfall, it is not found on the plains, but only on mountains in locations where soil and moisture are congenial to it. When the plant is not set deep enough it throws out several anchor roots which, according to Marloth, serve, when shriveling at the beginning of the dry season, to drag the new corm downward until by a series of annual descents the plant has reached its proper depth.

G. angustus Linn. (Narrow-leaved Gladiolus) was one of the first (if not the very first) of the African species to be introduced into Europe. The leaves are narrow, upright, shorter than the stem, and with a single prominent midrib. The stem is from one to two feet high. The flowers are from three to five in number, about four inches long, straight, narrow funnel-form, one-ranked, and scentless. The three upper segments are broad, the middle one being the broadest, the lower ones rather narrower, all flat and spreading. The color is usually described as white, and the lower segments are marked by a spade-shaped purple blotch. The color plate in *Curtis's Botanical Magazine* (tab. 602) shows a red blotch with a distinct eye of the same color as the segment, and the spot is connected with the base by a red line down the center of the petal. The flowers appear in June. This species, says Ker, propagates easily by seeds or cormels. The species was probably first noticed by Breyné, and was

described and figured by Linnæus in *Hortus Cliffortianus* in 1737. It was cultivated by Miller in 1757.

G. atrovilaceus Boiss. was introduced in 1889. It is therefore not very well known commercially. The plant grows from one to one and one-half feet tall, bearing linear, closely ribbed leaves. The spikes are not thicker than a slender pencil and bear from four to eight flowers. These are narrow and tube-like, with a small hood, and the colors are navy blue, purple, and white. Fuld (1912) reports that corms of this species planted in a cold frame in October and covered during the winter with sash, were discovered in active growth in March. Later the sash were removed, and the plants flowered on May 15. Bulbs planted in a greenhouse in December, according to Fuld, were in flower within two months. While the stems were not so long as those on the plants grown in the cold frame, the flowers were as graceful. If this proves to be the general experience, there can be no doubt as to the usefulness of this species for growing under glass, and it may prove a foundation for the development of a true forcing type.

G. blandus Ait. (Fairest Gladiolus) has corms of medium size. The leaves are sword-shaped, nerved, and shorter than the stem, which is from one to two feet high and bears from three to ten large flowers. The segments vary much in size and form in the different varieties; the lower segments are the narrower. The perianth is white, tinged with red, the lower segments with a reddish blotch at the throat. The flowers appear in June and are scentless. The plant blooms freely and propagates readily by both seed and cormels. The species was introduced into Kew in 1774 by Masson. In the figure of the species in *Curtis's Botanical Magazine*, the plant is shown with conspicuous red lines or markings on the spathes.

G. blandus var. *albidus* Jacq. (Snow-white Gladiolus) has stems one foot long, which bear three flowers. The flowers are almost pure white, there being only a very light stain on the backs of the petals before they expand.

G. blandus var. *carneus* De la Roche (Pale Purple Gladiolus), known in the early lists as *G. campanulatus* Andrews, is a more robust form, with larger, lilac or mauve, flowers. The upper segments are broad and overlap one another; the lower ones are narrower but overlap, are lighter in color than the upper segments, and are marked by a crescent-shaped red spot. This form was introduced in 1796.

G. blandus var. *excelsus* Sweet is a taller-growing and larger-leaved form of the species.

G. blandus var. *Hibbertii* Hort. has pink flowers with very distinct spade-shaped blotches on the three lower segments.

G. blandus var. *Mortoni* Herb. has stems one and one-half feet long. The flowers are white, with copious faint vertical streaks. The variety was introduced about 1835.

G. cardinalis Curt. (Superb Gladiolus), a beautiful Cape species, was given its common name because it grows from three to four feet high, bearing from twelve to twenty bright scarlet flowers, with the lower segments of the perianth marked by a large diamond-shaped white blotch. It is figured in *Curtis's Botanical Magazine*, tab. 135 (1790), where the statement is made that the species was introduced into England from Holland by Graffer and was first flowered by Lewis & Mackie at Kingsland. Aiton says it was introduced by Graffer in 1789. The species flowers in July and August. It is just hardy in England, and dampness affects the corms—which, however, are intolerant of being out of the ground long, and consequently it was the practice of growers to plant this species in the fall. Allen says it rarely flowers if planted in the spring.

This species is one of the parents of *G. Colvillei*, *G. ramosus*, *G. pudibundus*, *G. candidus*, and *G. incarnatus*. It is thought by some to be a parent of the *gandavensis* race, but the plant-breeding evidence, and to a certain extent the characters of the early varieties of this type, are against this being a fact. A rose-colored variety called *subroseus* was raised from *G. cardinalis* by Jacques in 1847 from seed produced in 1844. According to Marloth, this species is found on the moist cliffs and grassy ledges of waterfalls in the Wellington, Paarl, and Frenchhoek Mountains, flowering in midsummer (January). The corm is small but is provided with numerous long, thin, much-branched roots, which spread widely in the boggy soil. The species appears to flourish under conditions favorable to *Disa uniflora*, and sometimes the two may be found flowering together. The flowers are bright scarlet and crimson; the uppermost petal, the largest and hooded, is somewhat paler; the three lower petals and sometimes those adjoining them have a white blotch. The flowers are faintly scented like some lilies. In nature the plant hangs from cliffs, the stems are from three to four feet long, the leaves are from two to three feet long, and there are from five to ten flowers on the hanging spike. Whether the spike is hanging downward (as found under natural conditions) or is cut and placed in an upright position in water, the flowers are always in the normal position—that is, with the hooded segment uppermost. This is due to a turn of the tube which enables the flowers to adjust themselves to conditions under which the individual buds open, and appears to be an adaptation for butterflies and birds, which visit the flowers for the nectar in the narrow tube and accomplish fertilization of the flowers by brushing against the stamens or the stigmas that arch over underneath the hood.

G. cruentus Moore (Blood-red, or Bloody, Gladiolus) was introduced into England by William Bull, of Chelsea, in 1868. In his catalog for 1871 he offered the novelty and thus describes it:

A very beautiful and entirely novel species of this popular genus introduced from Natal. It is not only a very showy plant, but also one of a very distinct character and is an acquisition for the flower garden on account of its vigorous habit of growth and large brilliantly coloured flowers. It produces a tall scape, two feet high or upwards, furnished with long flag-like glaucous leaves nearly an inch wide, the scape terminating in a distichous spike of large, broadly campanulate, subringent flowers of a bright blood-red colour, the upper segments uniformly coloured and the lower smaller ones crimson at the base and scarlet at the apex. The two lateral segments of the lower lip are marbled about halfway down with a white zone dotted with crimson, which on the exterior edge runs out into a long point, like the flame of the Florist Tulip. This distinct species has been figured both in the *Botanical Magazine* and in the *Florist and Pomologist*. The price per corm is one guinea.

The flowers are from six to ten in number and appear late in September. The spikes possess the valuable quality of developing after being cut and placed in water. The corms are distinguished by their bright yellow color, globular form, large size, and thin covering.

This species is very sensitive to soil conditions, but, according to Van Fleet, if healthy corms are planted in nearly pure sand with a stratum of peat for a root run, kept fairly moist, and afforded plenty of sunshine, the plants will be strong and leafy with plenty of bloom. The plants will not grow in clay soil and seldom thrive in rich garden loam.

The first hybridizer to use this species was John Standish, of Ascot, England, who in October, 1871, exhibited a *breuchleyensis-cruentus* hybrid before the Royal Horticultural Society. The following year this hybrid was named Alice Wilson. A color plate of it appears in the *Florist and Pomologist* for 1873, page 73. T. Moore says it has more the form of a lily than that of an irid. The flowers were comparatively small, with a white center, a marginal coloration of rosy carmine, and little of the flame-like marking on the lower perianth segments, thus rendering the lily-like illusion all the more striking.

G. princeps was originated by Van Fleet from *G. cruentus* crossed with *G. Childsii* (*G. gandavensis* x *Saundersii*). This variety, says the originator, almost exactly reproduces the crimson-scarlet coloring with white and cream feathering in the lower segments, but the flat, circular flower is expanded to six inches in diameter both ways. The plant also is doubled in size in all its parts. This hybrid retains the peculiarity of *G. cruentus* in producing blunt-appearing spikes with apparently few flowers. Growth continues, however, until sometimes as many as twenty flowers are produced. The spikes show something of the same tendency when cut and placed in water that is kept fresh by frequent changing.

G. cuspidatus Jacq. (Tall Gladiolus), a native of Cape Colony, was introduced more than a century ago. The corms are small, being less than three-fourths of an inch in diameter. The three leaves are narrow, flat, and rigid. The stem is from two to three feet long. The flowers vary from four to eight in number. The segments are shorter than the tube, and generally waved. The upper segments are broadest; the uppermost one is nearly straight, but is recurved at the end. The color, according to Baker, is white or pale pink, with a spade-shaped blotch on each of the three lower segments. The plate in *Curtis's Botanical Magazine* for 1802 (Ker, 1749-1825, tab. 582) shows a yellowish white flower, with blotches of red, white center, and margins of purple; the anthers are shown as blue. The flowers appear in May. This species was introduced into Europe in 1785.

G. dracocephalus Hook. f. (Dragon's Head Gladiolus), a Natal species, was introduced by Wilson Saunders and flowered at Reigate, England, in August, 1870. It was discovered by Cooper in that part of Natal west of the Drachenberg Mountains. The flowers are yellow-green closely striped with dull purple-red on the upper segments, and bright green spotted with purple on the lower segments, which are much smaller and are recurved. The two outer segments are wing-like with recurved tips; the upper segment is arched and hooded. The stem is one and one-half feet high, bearing from five to seven flowers. This species has been used in crossing with *G. gandavensis* and *G. Lemoinei*.



FIG. 9. GLADIOLUS DRACOCEPHALUS

G. grandis Thunb. (Large Brown Afrikander) is found in the western part of Cape Colony, where it flowers in the spring. The larger flowers are sweet-scented in the evening. The perianth is yellowish, more or less tinged with purplish brown. The flowers vary from one to five, on stems from two to two and one-half feet long. The two or three leaves are strongly ribbed. The corms are small, from one-half to three-fourths inch in diameter.

Marloth (1915) distinguishes between *G. recurvus* and *G. maculatus* Sweet (Small Brown Afrikander). The latter, though similar in shape and color of flower to *G. grandis*, is only about half the size, and flowers in the autumn (May-June in the South Temperate Zone). The color is a deeper brown. Marloth says it is readily known by its extremely strong, almost narcotic, scent, which is especially noticeable in the evening. Baker makes *G. maculatus* Sweet a synonym of *G. recurvus*, but Marloth says *G. recurvus* has a pleasing fragrance and a different season of flowering, as well as a different form of leaves.

G. oppositiflorus Herb. is found in Transkeian Kaffraria, not, as Herbert supposed, in Madagascar; no collector has found it in the latter country. The corms are large. The leaves are from three to four in number, sometimes as many as six, crowded, ensiform, glabrous, and shorter than the stem. The whole plant is usually three feet tall, and occasionally five feet. The flowers number from thirty to forty in a dense, two-ranked spike. The flowers are large, and white with mauve-purple or amethyst stripes. Van Fleet says this species is of tall growth, bearing from eighteen to twenty-four blooms almost simultaneously, of delicate peach and white tints. The species has been looked upon as the parent of the light-colored *gandavensis* forms, and plant breeders have sought to obtain the long-desired, meritorious, pure white variety by continued crossing of the best white varieties with the purest white seedlings of this species. The results indicate that such pure whites as have been obtained are of low vitality and reproducing power.

This species was described by Dean Herbert (1842), but had already been noted by him in his work on the Amaryllidaceae in 1837. Herbert called attention to the fact that the species was sold by Dutch nurserymen under the name of *G. floribundus*, an old name for a different plant — *G. floribundus* Jacq. The same plant was known as *G. flabellifer* Tausch, and Tausch (1836) states that *G. floribundus* Hort. Holland (non Jacq.) is a synonym. The citation of the same synonym seems to leave little doubt that the same species was under consideration, especially when there is nothing contrary in the descriptions.

The reference just given indicates some of the difficulty of determining what species were used in hybridizing. An illustration of *G. oppositiflorus*

was published in *Curtis's Botanical Magazine* from specimens collected more recently, but it is there stated that the plant was identical with herbarium specimens left by Herbert.

G. primulinus Baker is from Usagara Mountains, in Africa, and was first flowered at Kew in 1890 from corms sent by J. F. Last, who discovered it in 1887. It was reintroduced by Francis Fox, who procured some plants from Rain Forest, Victoria Falls, and flowered them at Wimbledon, England. C. E. Allen says it grows in "one of the wettest spots near the Falls in a perpetual deluge." When this species was introduced it was regarded as a distinct species, but later it was referred to *G. Quartiniannus* A. Rich., which was introduced into cultivation by Sir John Kirk in 1884. The clear, uniform primrose color of the flowers, without any tendency toward markings, warrants its retention for horticultural purposes. At least *G. primulinus* has now become better known than *G. Quartiniannus*, and in garden literature it will doubtless be retained.

G. psittacinus Hook. (Splendid Corn Flag) is from the Cape and has been called the parrot, or perroquet, gladiolus. In Holland it was early known as *G. Dauleni*, after Dr. Dael, of Brussels, who is said to have been the first in Europe to flower it. Reinwardt named it *G. natalensis*, and under one or the other of the latter names it appears in early literature. It was first flowered in Great Britain by Richard Harrison, of Liverpool, in 1830, from corms procured from Prince de Salm-Dyck. The species was figured in the *Botanical Register* (1831), tab. 1442, and in *Curtis's Botanical Magazine*, tab. 3032.

Sweet (1832-35) figured and described this species under the name *G. natalensis* Reinw., Natal Corn Flag. He says it was "introduced by Professor Reinwardt, of Leyden, who has liberally distributed bulbs of it to various collections both in this country and on the Continent. It is by far the largest in growth, and in beauty of its flowers it is not surpassed by any others of the genus. The plant seems to be quite as hardy as *G. byzantinus* and requires the same soil and treatment as that species." *G. psittacinus* is one of the parents of *G. gandavensis* Hort.

G. psittacinus var. *Cooperi* Baker has segments more acute than in the type, and the tube is from two and one-half to three inches long.

G. purpureo-auratus Hook. f., from Natal, was introduced by William Bull, of Chelsea (who also introduced *G. cruentus*), and was first flowered in England in August, 1871. This is the hardiest of the African species. The corms are large, and the cormels are produced on the ends of running rootstocks. The leaves are somewhat glaucous, narrow, and stiff. The stems are from one and one-half to two feet tall. From ten to fifteen blooms are borne in one rank on the spike. The color of the flowers is greenish yellow, with a diamond-shaped maroon blotch on the two

lower segments. The flowers are bell-shaped and the spikes bow-like. This species is valuable, not for its beauty, but as a parent of garden forms. It was used in the development of *G. Lemoinei*.

G. recurvus Linn. (Violet-scented Gladiolus) is a native of Cape Colony, and was grown by Miller from seed and flowered at Chelsea before 1760. The stem is from one to two feet tall, is slender, and bears three strongly ribbed leaves. The flowers are from two to six in number, sulfur-colored, suffused and broadly edged with lilac, and with three stripes on each petal. The flowers are very fragrant, with a scent described by some writers as similar to that of violets or orris root. The species flowers in the northern hemisphere in April and May. This species is considered the most fragrant of the genus. It is somewhat intolerant of moisture when not in flower, but otherwise it never fails to bloom when the corms attain proper age. Marloth, who distinguishes between this and *G. maculatus* Sweet, says the three upper segments are broader than the lower, and are pale or dark lilac, and the lower segments are yellow with mauve or lilac points and similar streaks. The plant is frequent in the Cape flats and elsewhere, where it flowers in the spring (August) and is known by the common name *Mauve Afrikandes*. This species was introduced into Kew in 1774, where it was named *G. carinatus*. Miller's description is full and complete, but his figure is incorrect as the stem is not branched.

G. tristis Linn. (Sad-colored Gladiolus), an African species, was given its name by Linnæus because of the color of its flowers, which, however, are scarcely somber enough to deserve the name. The color is pale yellow, with dark brown spots. The blossoms are sweet-scented from dusk to dawn. The flowers appear in April and May on stems one and one-half feet high. The leaves are linear, four-sided, and furrowed. This was one of the first species brought from the Cape, and was cultivated by Philip Miller as early as 1745.

G. tristis var. *concolor* Salisb. was formerly known as *G. concolor*. This plant is so named because of the almost concolorous white and pale yellow flowers. Like the type, it is fragrant in the evening. The foliage has the peculiar characters of *G. tristis*. Like the type also, it endures little cold, and because of its early flowering must be grown in a frame.

HYBRID GLADIOLI

The variety *Bellona* is a hybrid between *G. cuspidatus* and *G. papilio*, raised and introduced by Dammann in 1899. In his catalog for the year Dammann described it as "an early-flowered gladiolus of most peculiar form and color. Leaves green, narrow and lanceolated, stalk about sixteen inches high, very rich-flowered. Petals long, rolled and

pointed; leaves dark salmon, steel blue with black spots. A new gladiolus not yet seen."

G. brenchleyensis is usually considered a form of *G. gandavensis*, although the persistency with which it has retained its individuality through a period of more than sixty-five years might lend weight to the belief that it is more than *G. gandavensis*. The early history of *G. brenchleyensis* is not definitely known. In 1848 this variety was recorded as a hybrid between *G. psittacinus* and *G. floribundus*, raised by Mr. Hooker, of Brenchley, about 1846.¹⁰ The stock, or a considerable proportion of it, passed into the possession of the Youells, of Yarmouth, who were for years the largest growers of *G. brenchleyensis* in England. Their notable displays of this hybrid did more to direct the attention of the public to the merits of this excellent variety than did the efforts of any one else. The flowers are vivid scarlet, with pencilings of yellow in the throat. They are only medium in size, but the great number open at one time produce a brilliant effect. The plant is therefore very useful in the garden, where it is a vigorous grower. It is considered by many growers to be the best scarlet variety, and is grown for its good color for table decorations. In Europe this gladiolus is often recommended for bedding with *Galtonia candicans*. Barr, in 1905, introduced Mikado, a sport of *G. brenchleyensis* which was described as having flowers of a pale blush-rose shading to cream, with the lower petal striped crimson on a primrose-colored ground.

G. candicans is a *blandus-cardinalis* hybrid producing a pure white flower of good size and appearance. This was raised by Mr. Miller, of Bristol, about 1837.

G. candidus is a hybrid between *G. blandus* and *G. cardinalis*, raised by Mr. Miller, of Bristol, about 1837, and figured in Smith's Floral Magazine.

G. Childsii has been one of the most important types in America. It is a hybrid between *G. gandavensis* and *G. Saundersii*, originally produced by Max Leichtlin, of Baden-Baden, Germany. Leichtlin was perhaps the first to appreciate the value of *G. Saundersii*, which he used in 1874 in crossing with some of the best varieties of *G. gandavensis*. The first flowers appeared in 1877 and the influence of the cross was especially manifest in the size of the flowers, which, according to Leichtlin, measured four inches across. The results of this hybridization work were reported in 1882.

Leichtlin appears to have disposed of his stock in the autumn of 1882 to Godefroy-Lebeuf, of Argenteuil, France. This new class of hybrids, however, seems not to have met with favor at the hands of European

¹⁰ George Bunvard stated in 1910 that his firm obtained *G. brenchleyensis* from Hooker and sold it to the Youells. Henry Youell (1911), in an address before the American Gladiolus Society, gives an entirely different account of its origin.

growers, who were attracted by the new *Lemoinei* group, and corms of *G. Leichtlinii* Hort. passed into other hands. The stock was purchased in 1884 (Childs says 1887) by V. H. Hallock, who continued to raise seedlings until 1891, when he sold the entire stock to John Lewis Childs. Until that time these gladioli were usually known as *G. Leichtlinii*, after the originator; but as none of the stock was in the hands of commercial growers, Childs decided to change the name of the group to *G. Childsii*, and under this name he sent out the following varieties in 1893: Ben Hur, Columbia, Dr. Sellew, Henry Gillman, Mrs. Beecher, William Falconer. These were shown in a color plate in Childs' catalog for the year mentioned. The price was one dollar per corm, or five dollars for the set of six varieties. In 1894 the varieties Aurea Superba, Mrs. La Mance, Ruby, Splendor, Torchlight, and Tuxedo were added. No varieties were added the following year, but in 1896 thirty-four varieties were introduced. Thirteen were added in 1897, seventeen in 1898, and twelve in 1899.

Since 1899 many varieties have been sent out, and, while it is probable that at present there is not a distinct *Childsii* group except in so far as it is represented by some of the original varieties remaining in the market, it can be safely said that this group revolutionized gladiolus culture in America. Although the first varieties sent out were not favorably received by European and some American growers, nevertheless the general superiority of these varieties to the *gandavensis* varieties was recognized, and *G. Childsii* served as a foundation for further improvement by American hybridizers.

G. Colvillei is generally regarded as a hybrid between *G. cardinalis* and *G. tristis* var. *concolor*. Dean Herbert thought it was a hybrid between *G. cardinalis* and *G. blandus*. The variety originated with Mr. Colville at Chelsea in 1823. Sweet (1826-27) states that it was raised by Colville from seeds of *G. concolor* that had been fertilized by the pollen of *G. cardinalis*. He publishes a color plate of the flowers and gives the following description of the plant:

Stem slightly flexuose (in our specimen about 18 inches in height), leafy, slightly angular, glaucous. Flowers secund or all facing one side. Perianthium tubular, ringent with a six-parted spreading limb, of a bright red, with pale purple margins; tube scarcely as long as the spathe in the lower flowers and rather longer in the upper ones, bent forward near the limb; laciniae unequal, obtuse, upper one more than double the size of the others, elliptic, slightly twisted or incurved near the point, the others oblong with the margins also incurved or involute near the points; three lower ones marked with a white spot which is lanceolate in the lower one and ovate in the others running down in a narrow line to the base of the laciniae, on each side of which it is bright purple. Pollen white.

Baker (1892) describes this hybrid as having "bright scarlet sub-erect flowers, with oblong acute segments, with a lanceolate blotch of bright

yellow at the base of the three lower." The color as shown in the color plate in *Flore des Serres* (Van Houtte, 1873) shows yellow blotches bordered with white, which contrast with the bright color. The flowers of *G. Colvillei* are fragrant, which points to *G. tristis* or *G. tristis* var. *concolor* as one of the parents.

The white variety of *G. Colvillei* seems to have been discovered about 1872. It is said to have appeared as a sport in two horticultural establishments in Holland in the same year. It was figured, together with *G. Colvillei*, in *Flore des Serres* (Van Houtte, 1873). The plate shows a pure white variety with yellow lanceolate blotches on the lower segments. This sport, known as *G. Colvillei albus*, had colored anthers and was supplanted later by the variety with white anthers known commercially as *G. Colvillei* The Bride.

G. Coleillioides, a hybrid produced by crossing a variety of *G. Lemoinei* with *G. angustus* (the latter a form closely related to *G. tristis*), resembles *G. Colvillei* but has yellow flowers. The leaves are long and straight, with prominent ribs. The stems are slender and erect, and bear medium-sized flowers. The color is a pure chrome yellow, with three triangular black spots or blotches. The normal time of flowering is the early part of July, but if the corms are planted in the autumn and protected during the winter by glass frames they may be made to flower with *G. Colvillei*. This hybrid was originated by Lemoine and was offered as a novelty in the autumn of 1903.

G. delicatus is a hybrid between *G. recurvus* and *G. blandus*, raised by Dean Herbert.

G. dracocephalus has long been known, but seems not to have been employed in hybridizing until recent years. Jackson (1889) described the *dracocephalus-gandavensis* hybrids of C. Sander as being of great size, strong, and floriferous. He states that a large proportion bear flowers entirely free from the stripes in the lower petals common to *G. gandavensis*. This is due to the *dracocephalus* blood and is a step toward self-color. Whether these hybrids were introduced is unknown.

The veteran hybridizer, Lemoine, offered his *dracocephalus* hybrids in 1900. These were produced by crossing *G. dracocephalus* and some of the varieties of *G. Lemoinei*. The form of the flowers indicates their origin, while the singular spots, or macules, produce a striking effect. The first varieties sent out were Cheret, Forain, Léonnee, Luc-Olivier Merson, Paul Baudry, and Roty. Since 1900 other varieties have appeared each year. A list of these varieties, together with the dates of their introduction, follows:

Arlequin.....	1904	Le Masque.....	1904	Ribera.....	1902
Benvenuto Cellini...	1902	Léonée.....	1900	Rigoletto.....	1908
Cham.....	1900	Louis Français.....	1901	Robinson.....	1904
Chaplain.....	1901	Luc-Olivier Merson.....	1900	Rodin.....	1908
Cheret.....	1900	Mars.....	1900	Ronsard.....	1903
Crafty.....	1900	Mascaraade.....	1907	Roty.....	1900
Daumier.....	1900	Michel-Ange.....	1902	Semaphore.....	1901
Dubufe.....	1901	Miracle.....	1907	Spirite.....	1907
Eugène Manuel....	1901	Misanthrope.....	1906	Tabarin.....	1903
Falguière.....	1908	Mohican.....	1908	Tharsis.....	1906
Fatalité.....	1907	Mystère.....	1904	Thebiade.....	1906
Figaro.....	1906	Nabab.....	1906	Turlupin.....	1906
Forain.....	1900	Nostradamus.....	1907	Tyran.....	1907
Fragonard.....	1904	Papillon.....	1904	Ugolin.....	1907
François Villon....	1913	Paul Baudry.....	1900	Velasquez.....	1902
Henriot.....	1900	Pierre Gringore....	1903	Vendetta.....	1908
Illusion.....	1907	Quasimodo.....	1904	Virgile.....	1902
		Rabelais.....	1903	Watteaw.....	1904
		Radiant.....	1901	Werther.....	1902
				Willette.....	1900

Early Gladioli, *Glaïeuls Precoces*, are hybrids produced by Lemoine and offered by him in his catalog no. 149, for 1901-1902. It is there stated that these varieties are hybrids between some of Lemoine's earliest varieties and the little-known species *G. Leichtlinii* and *G. aurantiacus*. This race flowers, it is said, about a month in advance of the earliest of the previously introduced varieties. When set out in April the plants flower in June; and if set out in the autumn with the protection of a glass frame, they develop their flowers at the same time as *G. Colvillei*. The varieties offered in the autumn of 1901 were *Eclaireur*, *Mesager*, *Pleiade*, and *Précocité*. Since these were introduced there have appeared the following:

Alhambra.....	1906	Favori.....	1904	Mélusine.....	1910
Aurora.....	1908	Fraicheur.....	1905	Oasis.....	1908
Brasier.....	1905	Giralda.....	1906	Parnasse.....	1910
Calchas.....	1910	Grenade.....	1906	Phenix.....	1905
Carmen.....	1906	Gyges.....	1910	Success.....	1905
Couquete.....	1908	Melrose.....	1908	Vision.....	1904
Embleme.....	1910				

G. excelsior covers hybrids of the best varieties of *G. gandavensis* crossed with *G. nanceianus*. The flowers are described as very large and open, ranging in color from salmon-scarlet to soft blush-rose with a scarlet or cream-colored blotch, or a crimson blotch on a white ground. Barr offered these varieties as a new strain in his catalog for 1903.

The name *Express Gladioli* has been applied to the crosses of *G. alatus* with *G. cuspidatus* produced by C. G. van Tubergen, jr., of Haarlem, Holland. Van Tubergen (1907:440) describes them as follows:

A selection of crosses between *G. alatus* and *G. cuspidatus* are dwarf-growing, very free-flowering gladioli which flower in the open ground quite three weeks before the

earliest of the *nanus* or *ramosus* sections, which, as is well known, precede the *gandavensis* and other strains in time of flowering from three to four weeks. These *alatus* × *cuspidatus* gladioli, apart from their usefulness in flowering so early in the open ground (end of May), are very welcome additions to the gladiolus family, as each bulb produces from two to five spikes of about a foot in height, with flowers of fair size and of a charming colour of rosy-salmon with golden-brown markings. They are admirable for filling small glasses for table decoration, and other choice floral work. This strain I named "Express."

G. formosissimus is a hybrid uniting the abundant flowering of *G. ramosus* with the colors of *G. cardinalis*, though not so brilliant as the latter. It first flowered in 1842, and for many years was one of the leading varieties of the early-flowering group.

G. fragrans is a hybrid between *G. recurvus* and *G. tristis*, raised by Dean Herbert. The flowers are variegated and sweet-scented. The plant is moderately hardy.

G. gandavensis is probably a hybrid between *G. psittacinus* and *G. oppositiflorus*. It was originated by M. Beddinghaus, gardener to the Duc d'Arenberg at Enghien, who made some crosses in 1837. One of the resulting seedlings, which was much admired by all who saw it, passed into the control of Louis van Houtte, of Ghent, who named it *G. gandavensis* and introduced it in his catalog no. 6, for 1841. He described it in glowing terms, as follows: "In stateliness and color it exceeds all others we have seen among gladioli. Its dimensions surpass *ramosus*; its majestic flowers to the number of eighteen or twenty are of the most charming vermilion; their inferior petals, adorned with chrome, amaranth, and brown, are relieved by anthers of an azure blue which descends to the center of the flower. At the moment I write all Ghent comes to admire it." Van Houtte thought it a hybrid between *G. psittacinus* and *G. cardinalis*, but this is doubtful.

This variety was the foundation of a new race which has been known as *Gladiolus gandavensis*. Probably two thousand varieties have been named and sent out. This group led all others for garden planting from about 1850 to 1880, when the *Lemoinei* varieties came in, closely followed by the *nanceianus* and *Childsii* varieties. It is still important, and may be regarded as holding a position in gladiolus development in some respects analagous to that of the hybrid perpetual roses in the evolution of garden roses.

G. haylockianus is a hybrid between *G. recurvus* and *G. blandus*, raised by Dean Herbert. Mrs. Loudon describes the flowers as pale and slightly variegated.

G. Herbertianus is a hybrid between *G. tristis* and *G. spafforthianus*, raised by Dean Herbert.

G. incarnatus is a hybrid between *G. blandus* and *G. cardinalis*, raised about 1837 by Miller, of Bristol. It produces large, well-formed flowers of a pale pink color.

G. insignis is described in *Paxton's Magazine of Botany* (volume 7, pages 223 and 224) as a handsome hybrid with very long narrow leaves, and apparently drooping flower stalks on which the blossoms are borne chiefly on the upper side. The flowers are of a rich reddish crimson hue, with a dash of bluish purple in the center of the lower segments of the perianth. The parentage of this hybrid is unknown, but it was probably raised by Colville, as it was found in a collection purchased by Lucombe Pince & Co., of the Exeter Nursery, at the sale of Colville's nursery. It flowered with the new owners in July, 1839, and is figured on a color plate in *Paxton's Magazine of Botany*, volume 7 (1840), page 223.

G. Lemoinei (Large Spotted Gladioli) forms a group which had its origin in a hybrid made by Victor Lemoine between *G. purpureo-auratus* and some of the best *G. gandavensis* varieties. The original cross was made in 1875, and three seedlings were obtained, of which two — *Lemoinei* and Marie Lemoine — were named and later sent out. The new hybrids were exhibited at the Universal Exhibition in Paris in 1878, where they attracted considerable attention from amateurs. The two varieties were identical except in general color effect. *Lemoinei* was rosy white and Marie Lemoine straw color, both having on the lower segments large blotches of purple bordered with yellow. The two varieties were hardy, like the female parent, in the open ground at Nancy. In 1880 these varieties were offered for sale, and in 1882 five additional varieties — Lafayette, Cavaignac, L'Abbe Gregoire, John Thorpe, and Rochambeau — were introduced. To these were added, in the autumn of 1882, *Enfant de Nancy*, *Victor Hugo*, *Stanley*, *Adeliaque*, *Cleopatre*, *Christophe Colombo*, *Incendie*, and *Mars*.

Varieties with a tendency toward blue appeared early in the development of this type. Gambetta (1885), Emile Galle (1887), Baron Joseph Hulot (1896), represent the successive steps in the development of the blue varieties.

G. Lowii is said by De Jonghe (1843) to have the same parentage as *G. gandavensis*. It was offered by Jacob Makoy in 1842.

G. massiliensis is a hybrid of *G. psittacinus* and *G. gandavensis*, and was announced by Krelage as a new race in 1892. The hybrid was the result of testing the opinion held by some growers, that in order to secure greater vigor and resistance to disease it would be necessary to turn again to the world's species and use these in further crossing. This hybrid had, it was said, all the bad qualities of *G. psittacinus*, and it was apparent that the modern gladiolus had certain qualities resulting from its fifty years of improvement which could not be ignored by plant breeders if their results were to meet the approval of gardeners and florists.

G. mitchamiensis is a hybrid resulting from crossing *G. tristis* and *G. hirsutus*. It is named after Mitcham, where Dean Herbert, who raised it, resided about 1810. The flowers are beautifully variegated, inclining toward *G. tristis*.

G. nanceianus is a hybrid produced by crossing *G. Saundersii* with some of the first *Lemoinei* varieties. The flowers are larger than the *Lemoinei* varieties, well open, and marked with peculiar mottling or with short, fine, often parallel, strokes of contrasting colors. The plants of the different varieties vary considerably in vigor, some exceeding any of the varieties of the other garden groups. The spikes of some of the more vigorous *nanceianus* varieties are often six feet high and bear flowers seven inches across. As in the case of *G. Lemoinei*, the varieties sent out by Lemoine are hardy under conditions similar to those of the place of origin. The first varieties, President Carnot and Maurice de Vilmorin, resulted from the crosses between *G. Lemoinei* and *G. Saundersii* in 1883. The seedlings flowered in 1885 and were placed on the market in 1889. These forerunners of a new type were shown at the Universal Exposition in Paris in 1889, and exhibited in the same year by Veitch & Son at the meeting of the Royal Horticultural Society in London.

G. nanus (Dwarf Gladioli) is the term applied to a number of early-flowering dwarf gladioli which differ from one another in the arrangement of flowers and in the disposition of the spots of color. Most of them are probably derived from *G. cardinalis* and *G. ramosus*, although *G. blandus*, *G. tristis*, and some others are probably concerned. This class has been largely developed by florists of the Channel Islands and in the Low Countries. The literature concerning the varieties is scanty or not readily available. *G. Colvillei* is undoubtedly the oldest variety of this class, and its white form (*G. Colvillei albus*, The Bride) is extensively employed for forcing.

G. odoratus is a hybrid between *G. hirsutus* and *G. spofforthianus*, raised by Dean Herbert.

G. praecox forms a group reported to have arisen from intercrossing the earliest varieties of *G. gandavensis*, *G. Lemoinei*, *G. Childsii*, and *G. nanceianus*. It is said that in color and size the flowers are the equal of those of any other group. The especial merit of this new group is that it can be grown from seed since seedlings flower the first year. The group was originated by Frederick Roemer.

G. princeps is a hybrid between *G. cruentus* and *G. Childsii*, produced by Van Fleet, who gave the history of it as follows (Van Fleet, 1904):

Gladiolus Cruentus has round, widely-opened blooms about two inches across when fully developed, bright blood-red in color, with broad white markings in the throat, particularly at the bases of the lower petals or perianth divisions. It grows two or more feet high, with broad, handsome foliage, with a characteristic droop to the tips

of the leaves. It is usually short-lived under cultivation, thriving best in well-drained peaty soils.

Mrs. Beecher, the pollen parent of *G. Princeps*, I understand, is one of the original *Childsi* varieties grown by the late Herr Max Leichtlin, of Baden Baden, Germany — from seed of *G. Saundersi* pollinated with a superior *Gandavensis* variety. Plants of Mrs. Beecher grow over four feet high with long, straight spikes of widely-opened blooms often five inches across. The color, though disposed very much in the manner of *G. Cruentus*, is rather dull crimson with speckled white throat.

Owing to the similarity of color pattern of the two varieties I made many pollinations in 1895 of *Cruentus* with Mrs. Beecher and seventy-two seedlings resulted, blooming in 1896-7. *Princeps* was the most vigorous and in some respects the most attractive and was so named by Herr Leichtlin, who introduced it to the Botanic Gardens of Europe in succeeding years, on account of its great international value and wide general recognition. I have since made many hundreds of crosses of *Cruentus*, which is a very shy seeder, with the best procurable species and varieties, resulting in some exceedingly handsome hybrids, but have found few worthy to send out as companions of *Princeps*.

The stock of *Princeps* was sold in 1902 to Vaughan's Seed Store for \$1000 — a record price at the time, but since greatly exceeded for the stocks of successful novelties — and introduced by them the succeeding year.

Princeps has probably the most extensive list of high awards from representative horticultural societies ever achieved by a *Gladiolus* variety and is still frequently exhibited and commented on in home and foreign gardening periodicals.

G. propinquus is a hybrid between *G. floribundus* and *G. blandus*, resembling the latter. It was raised by Dean Herbert.

G. pudibundus (Blush-flowered Corn Flag) was figured by Sweet (1832-35), and described by him as follows:

This is a hybrid, we believe, between *Gladiolus cardinalis* and *blandus* and was raised by the Honorable and Reverend William Herbert to whom we are obliged for the specimen figured in the plate.

Stem from two to three feet high, straight, cylindrical, smooth. Leaves broadly ensiform, acuminate, ribbed, of a pale green. Flowers large, of a brilliant rose color, about ten in number, distantly alternate and disposed in a distichous spike. The three lower segments marked with a pale whitish lanceolate spot having a deep red edge. Anthers purple. Filaments and style declinate, white. Stigmas linear-cuneate, notched, concave, copiously papillose.

G. ramosissimus is probably a hybrid. It is mentioned in *Gardeners' Chronicle*, 1842, page 171, as ranking next to *G. cardinalis* and *G. psittacinus* in beauty. The plant is tall, and bears a profusion of pale rosy pink flowers.

G. ramosus (Branching *Gladiolus*) is a hybrid which originated at Haarlem from seed of *G. blandus* or *G. floribundus*, according to a writer in *Revue Horticole* in 1838. Some persons regarded it as a distinct species from the Cape of Good Hope. These doubtless confused it with the *G. ramosus* of Linnæus, which has since been referred to the genus *Melasmaura* Ker. Baker thinks this form is a hybrid between *G. oppositiflorus* and *G. cardinalis*.

The plant is tall, with heavy, broad leaves. The flowers are openly funnel-shaped, bright red, with dark blotches at the base of the three lower segments. The flower has a general resemblance to that of *G. blandus*. This type blossomed later than the varieties of the *blandus* and *cardinalis* groups, and was for a long time an important one in the

garden. The corms should be planted in the fall, since the variety does not flower well if planted in the spring. It is not hardy, and can be brought safely through the winter only by planting in well-drained soil and protecting with a heavy mulch, or by planting in a cold frame.

G. rigidus is a hybrid between *G. tristis* and *G. blandus*, but inclining toward the latter. It was raised by Dean Herbert.

G. schwartzenbergianus is a hybrid with the same ancestry as *G. gandavensis*, and was listed by Jacob Makoy in 1842.

G. splendidus is another hybrid with the same parentage as *G. gandavensis*, offered by Jacob Makoy in 1842.

G. spofforthianus is a hybrid between *G. cardinalis* and *G. blandus*, raised by Dean Herbert. The flowers show more resemblance to *G. blandus* than to *G. cardinalis*. The name was given to honor Spofforth, the home of its originator.

G. Sternii is a hybrid raised by Beddinghaus and introduced by Jacob Makoy in 1842.

G. turicensis is a hybrid between *G. Saundersii* and *G. gandavensis*, offered by M. Froebel, of Zurich, Switzerland, in 1889. This hybrid was cataloged in the United States by Peter Henderson in 1891.

G. Victorialis is a hybrid between *G. byzantinus* and *G. cardinalis*. It originated with Dammann, who offered it in 1893 with the following description:

A new early-flowering class of gladioli standing the winter well. It is the first hybrid gladiolus between a European and a Cape species. The habit of the plant stands between those of its parents. It is dwarf, robust, and rich flowering. The flowers are pink or dark red, and the inner segments are striped like those of the African *Gladiolus cardinalis*. They appear about the middle of April, are large, very open, and somewhat scented. The *Gladiolus Victorialis* offers quite a new field to the grower as he may further try to unite the beauty of the African species and the hardiness of the European kinds. Well adapted for the market and cutting.

G. vitriacensis is a hybrid between one of the *Lemoinei* varieties and some of the early-flowering forms known as *G. nanus*. The flowers are reported as being of medium size and brick red in color, with the characteristic blotches of the dwarf type. The plant, however, is taller and more vigorous than the dwarf type. This form was offered in 1913 by Cayeux et Le Clerc, who have seedlings of other colors ready for introduction. The value of this type is that it fills the gap between the early- and late-flowering groups.

G. Willmoreanus is a hybrid of *G. gandavensis* and *G. floribundus*. The flower is creamy white, with the three upper segments streaked delicate rosy purple. It resembles *G. psittacinus* in form, but not in color. The variety was introduced as *G. natalensis* var. *Willmoreanus*. Allied to this were the following varieties: *G. oldfordiensis*—flowers large, delicate

salmon marked with purple; *G. rosco-purpureus* — flowers of medium size, of a deep rosy red marked with deep purple-red; Wellington — flowers large, deep orange-red. All these were raised by Mr. Cole, gardener to Mr. Willmore, of Oldford, and were noted in the *Floricultural Cabinet* for 1850, page 295.

HISTORY OF GLADIOLUS IN AMERICA

The gladiolus was not an important garden flower in America one hundred years ago, and in comparison with other flowers it received scant treatment in the garden books of the period. McMahon (1806) mentions "gladioluses," or "gladiolus's," incidentally in his brief discussion of the culture of hardy bulbs, and likewise in connection with Cape and greenhouse bulbs. A list of species with the common name of each, taken from English garden works, is given at the end of his book. As will be seen later, these species were not cataloged in this country. Green (1828) does not mention gladioli. Sayers (1838) names the following species:

Tender bulbous plants

<i>Gladiolus versicolor</i>	Variegated	May, June
<i>G. cardinalis</i>	Dark red	May, July
<i>G. psittacinus</i>	Yellow	

Florists' flowers

<i>Gladiolus alatus</i> , bright orange	<i>G. floribunda</i>
<i>G. byzantium</i> , delicate purple	<i>G. fragrans recurvus</i>
<i>G. carneus</i> , flesh-colored	<i>G. hirsutus roseo</i>
<i>G. cardinalis</i> , superb scarlet	<i>G. psittacina</i> (parrot-like)

A few years later the works of Breck (1851), Bridgeman (1847), and others gave more space to the culture of gladioli, but it was not until the time of the Civil War that there seems to have been any considerable interest in the flower.

The most extensive collection of gladioli offered by any of the pioneer American seedsmen was that of William Prince, who in 1825 offered the following species and varieties:

Gladiolus (Corn flag, or sword lily)

Class, *Triandria*; Order, *Monogynia*

1. *Gladiolus communis*, purple
2. *Gladiolus communis*, rose-colored
3. *Gladiolus communis*, large red
4. *Gladiolus communis*, flesh-colored
5. *Gladiolus byzantinus*, or Turkish flag
6. *Gladiolus segetum*
7. *Gladiolus Watsonius*, or scarlet flag
8. *Gladiolus tyger*, yellow
9. *Gladiolus*, large African

Under *Greenhouse Plants* the following are given:

735. Rose-colored gladiolus, *G. africanus roseo*
 736. Yellow gladiolus, *G. africanus luteo*
 737. Narrow-leaved red gladiolus, *G. angustifolia rubro*
 738. Two-spotted gladiolus, *G. bimaculatus*
 739. Sad-flowering gladiolus, *G. triste*

The first species was offered at 12 cents for each bulb, the next three kinds at 20 cents, the fifth kind at 25 cents, the sixth at 50 cents, and all the others at \$1 each.

The oldest American catalog consulted in this work was that of Grant Thorburn for 1824. Here are offered "Gladiolus, or Sword Lily, beautiful," at 12 cents, and "Gladiolus by name, superb varieties," at 50 cents each. Thorburn offered in 1827 the following gladioli, the prices of which also are interesting:

	Each	Per dozen
<i>alatus</i> , or wing-flowered.....	Bright orange..... \$.50	\$5.00
<i>byzantinus</i> , or Turkish flag.....	Delicate purple..... .25	2.50
<i>carneus</i>	Flesh-colored..... .50	5.00
<i>cardinalis</i> , or large-flowered.....	Superb scarlet..... .50	3.00
<i>floribundus</i> , or cluster-flowered.....	..... .50	5.00
<i>fragrans recurvus</i> , or sweet-scented.....	..... .50	5.00
<i>frimiculata</i>.....	..... .50	5.00
<i>hirsutis roseo</i> , or rose-colored.....	..... .50	5.00

The catalog of Thorburn for 1832 includes *psittacina* (parrot-like), a new and splendid variety sold at 75 cents each or \$6 a dozen. *Frimiculata* was dropped. Aside from these two changes the list is similar to the preceding.

Landreth in 1828 cataloged *G. undulatus* and *G. carneus*.

The editor of *American Gardeners' Magazine* stated in 1835 that *G. byzantinus*, *G. cardinalis*, and *G. communis* were the only kinds observed in the gardens around Boston. In the same year S. Sweetser read a paper at the January meeting of the Massachusetts Horticultural Society, entitled *Remarks on the Management of Gladiolus natalensis* (now properly known as *G. psittacinus*). He had flowered the species the year before from bulbs procured from Thorburn, who imported the species in 1832 and offered it to his customers. Later (in 1835) it was stated that *G. Colvillei* and *G. tristis* were flowered by Mr. Cushing. Baron von Ludwig sent a collection of bulbs to the Massachusetts Horticultural Society in 1836, and among them were *G. hirsutus*, *G. blandus*, and *G. alatus*. Marshall P. Wilder flowered and exhibited *G. floribundus* and *G. pudibundus* (a hybrid raised by Dean Herbert) in 1837.

Hovey & Co. in 1839 offered corms of *G. natalensis* at 20 cents each, and of *G. floribundus* at 50 cents each.

R. Buist in 1844-45 cataloged the species *bimaculatus*, *blandus*, *byzantinus*, *cardinalis*, *Colvillei*, *floribundus*, *formosissimus*, *galeatus*, *hirsutus*,

inflatus, *insignis*, *præcox*, *psittacinus*, *pudibundus*, *ramosus*, *roseus*, and *undulatus*, and the variety Queen Victoria. *G. ramosus*, *G. insignis*, and *G. formosissimus* were \$2 each, while Queen Victoria corms were \$2.50 each.

The editor of the *Magazine of Horticulture* says (on page 6 of volume for 1846) that the variety Queen Victoria, and the species *G. gandavensis* and *G. ramosus*, have already flowered in this country. *G. Christianus* was exhibited on July 18 of the same year, and *G. belviderus* on August 1. *G. Wilhelmus* and the variety Lizette were exhibited on June 26, 1847, and *G. Liebnitzii* was exhibited on July 24.

The culture of gladioli, however, was not very common at this time. An amateur florist wrote as follows (Anonymous reference, 1848 a):

The Gladiolus.—This is one of the finest bulbs in the world for the open border in this country. The common Gladiolus, or "sword lily," (*G. communis*,) with purple flowers, and the green striped, or Parrot Gladiolus, (*G. psittacina*,) are well known hardy border flowers. But the finer new hybrid species and varieties, so well known in Belgium, (where they cultivate above forty sorts,) are very seldom seen in the United States, except in the gardens of the largest collectors.

They are well worthy of more attention. The roots of these new sorts are very easily preserved through the winter in a cellar or green-house; and nothing can well be more gay, brilliant, or delicate than the colours of many of the finer sorts,—*G. cardinalis*, *gandavensis*, *roseus*, etc., with all the shades of flesh colour, rose, pink, deep scarlet, and purple, in their long spikes of blossoms. They also come into bloom at midsummer, when there are comparatively few flowers in our borders. Good, rich, sandy loam, and an open exposure, will, in this climate, grow them to our great satisfaction.

Hovey in 1852 listed the following species and varieties under the head *Greenhouse Bulbs*: *blandus*, *cardinalis*, *Colvillei*, *floribundus*, *gandavensis*, Lord John Russell, *natalensis*, Prince Albert, *pudibundus*, Queen Victoria, *ramosus*. In 1854 the following were added: Apollon, Eugénie, Intermedius, *psittacinus major*, *rosea carnea*, Ulysses.

From the foregoing it is evident that many, if not all, of the new kinds appearing in Europe were offered to American growers. That the importations were made is sufficient indication of an interest in gladioli, but up to 1852 the writer has not discovered any record of new varieties being produced in America.

E. S. Rand, jr., as chairman of the floral committee of the Massachusetts Horticultural Society, published with his report for 1858 a paper on the culture of the gladiolus, in which he expressed the hope that seedlings would be raised. It appears later that Mr. Rand and others acted upon the suggestion, for the following statement is found in the history of the above-named society: "This year [1863] witnessed the commencement of those profuse and beautiful displays of seedling gladioli." Mr. Rand exhibited in 1863 seedling no. 12, rosy salmon, which was commented upon favorably by the committee. A week later, on September 5, he

exhibited no. 2, white, a fine hybrid between *Sulphuria* and *Berthe Rabourdin*. On September 12 he exhibited seedling no. 13, light salmon in color. John Hogan exhibited five seedlings on August 22, and James McTear nine on August 29 and one on September 12.

W. C. Strong, E. S. Rand, jr., George Craft, Francis Parkman, and James McTear were the principal exhibitors of seedlings in 1864. Craft won the silver and bronze medals. *Elnora* (Craft), the variety awarded the silver medal, was a pure white, in some cases faintly flaked with violet, the center petal feathered maroon on delicate lemon ground; it was characterized by a bold spike, a large flower, a neat and compact face, and vigorous habit. Colonel Wilder Wright (Craft), the variety awarded the bronze medal, was of the reverse-flowered form, carnation in color, marbled and mottled with carmine, the lower petals heavily marked and feathered with carmine-purple; its size, form, and habit were good. McTear exhibited *Jeanie Dean*, which was white marked with crimson-purple; other varieties from the same exhibitor were *Salmonia* and *Exemplar*. Strong was awarded a first class certificate for a variety which was brilliant cherry-carmine in color, shaded violet-purple, the lower divisions of the petals marked with a distinct white line. The report for 1864 would indicate that there must have been a remarkable interest in the production of new varieties, for McTear exhibited twelve, Parkman twenty, Craft thirty-eight, and Strong forty-two seedlings during that season.

James McTear won the silver medal for the best seedling exhibited in 1865. George Craft exhibited, among other seedlings, the varieties *Mrs. Westcott*, *Elnora*, and *Fairy*. W. C. Strong exhibited his new seedling *Parkmanii*.

Silver medals were awarded to George Craft and J. S. Richards in 1867; to J. S. Richards for his seedling *The Bride*, and to Francis Parkman, in 1868; to J. S. Richards in 1869; to J. S. Richards for *Elegantissima* in 1871; to A. McLaren in 1872; and to James Comley in 1874. Bronze medals were awarded to J. S. Richards in 1872, and to W. H. Spooner for *Diamond* in 1878. First class certificates were awarded to Francis Parkman in 1866; to J. S. Richards for the seedling named *Joseph Breck* in 1868; to J. S. Richards for the seedling *M. P. Wilder*, and to George Craft for the seedling *Thomas Sheren*, in 1869; to A. McLaren in 1872; to J. C. F. Hyde in 1875; and to J. W. Clark in 1882.

The development attained by these American growers may be understood by the following extract from the report of the floral committee for 1872: "The gladioli were all that could be expected, and nothing seemed to please the strangers so much. Indeed they were astonished when informed that they were American seedlings. Gentlemen capable

of judging on any flower were delighted to know that such progress had been made in the standard of this popular and useful flower."

The credit for introducing the first American seedling has not been definitely determined, owing to the fact that all available catalog files were incomplete. It is quite certain that some of the producers of the new seedlings that have been named were the first to introduce their novelties. In the fifteenth edition (1868-69) of the catalog of Curtis & Cobb, of Boston, Massachusetts, Craft's Elnora, Finette, Imprimis, Lieutenant Stearns, and Viola, and McTear's Salmonia, are fully described.

The bound catalogs of Washburn & Co. for 1868 contain what is probably the first color plate of any variety of gladiolus published by an American seedsman. The varieties figured are *G. brenchleyensis* and Berthe Rabourdin. The first American variety shown by a color plate, so far as the writer can discover, was Innocence, a variety originated by James Vick and figured in his magazine for February, 1885. The two original varieties of *G. Lemoinei* were shown by means of an excellent color plate in *American Gardening* in 1882.

Although Curtis & Cobb appear to have been the first to catalog named American seedlings, nevertheless attention should be given to the *List of Gladiolus Roots*, No. xv, 1870, of George Craft, of Brookline, Massachusetts, wherein are described Blythe, Freedman, Gordianus, Grenadier, Jores Morthen Jongman, Lisette, Napoleon I, Theophila, Hesba, Yosemite, Finette, Katarina, Lieutenant Stearns, Lucilla, Mariana, Morningside, Petit Bonnet, Rosalind, Sarah P. Pearce, Scrooby, Statuiskii, Una, and Violenta. It is stated that these are Craft's own seedlings. It is more than probable, therefore, that Craft offered his seedlings prior to the time when the same varieties were offered by Curtis & Cobb. In 1871 Craft offered Alphonso, Ariadne, Leyden, Lucio, Mrs. Westcott, Naseby, Thomas Sheren, Valentine, and Virginie as new, with the following in his general list: Adriana, Blonde, Early, Golden Lily, Orlando. No new varieties appear in the lists for 1874 and 1875, which complete the lists consulted. There was a lessened production of seedlings after 1873 until about 1890, and the present interest in gladioli dates from about 1908.

Meanwhile the interest in the French varieties of Souchet was increasing. Barnes & Washburn, Spooner & Co. (later Strong & Spooner), Henry A. Dreer, Eugene A. Baumann, George Such, and C. L. Allen had extensive collections of varieties. The last named, in his catalog of spring bulbs for 1869, stated that he had over two hundred varieties, and in 1871 he announced over three hundred varieties. He was at that time the largest grower of corms. In 1870 he had seven acres, and in 1873 fifteen acres, devoted to growing gladioli. The cut blooms were

shipped to New York in large quantities, occasionally as many as ten thousand spikes being sent in one day.

A number of seedlings were raised at Rochester, New York, and introduced in 1883 by James Vick. These were Brunette, Bryant, Charlotte Cushman, David Copperfield, Dr. Warder, Henry Clay, Holmes, Innocence, Longfellow, Lowell, and Rainbow. This list, with the exception of the last-named variety, was cataloged for several years.

The variety Snow White was raised by J. C. F. Hyde, of Newton, Massachusetts, and exhibited before the Massachusetts Horticultural Society in August, 1879, when it was awarded a first class certificate. In 1881 it was recommended by the floral committee for the prospective prize of \$40 as the best flowering plant. Hallock & Son bought the stock in 1883 and changed the name from Hyde's Seedling — or Hyde's White, as it was locally known — to Snow White, and introduced it in 1890.

Among the American varieties of gladioli produced between 1880 and 1890 were Bayard Taylor, Emma Thursby, E. M. Stanton, General Phil Sheridan, Golden, Isaac Buchanan, Joseph's Coat, Martha Washington, President Lincoln, and Augusta (Hallock).

Meanwhile Luther Burbank had been breeding gladioli, and about 1890, after twelve years of experimenting, he placed on the market a strain the flowers of which had greater substance, and therefore withstood the bright sun and dry atmosphere of California much better, than the older types. This strain had strong, stiff stems which were not so tall as in the usual types, but the flowers were large and had all the usual colors. Among the varieties were California, Cisco, Mariposa, Santa Rosa, Shasta, and Yolo. Later, probably in the following year, Igo, Modesto, Mono, and Pohono were added to the list. The price of California and Santa Rosa was \$2 a corm, but the set of ten varieties was offered at \$8. Unnamed seedlings and seed were offered for sale. The variety California was remarkable from the fact that the flowers were arranged close together all around the stem. The development of a number of similar varieties in France may possibly have started from this singular variety developed by Burbank. The variety California was notable also in another respect, and that was its habit of sometimes producing double flowers. If this tendency appeared when the variety was grown outside of California it does not seem to have impressed lovers of the flower, for nothing resulted from it.

The work of Matthew Crawford began about 1880, but he did not catalog gladioli until 1888. Prior to 1891 he offered his gladioli in mixtures. The first seedlings which he named and introduced were Bertha, Lulu, Mabel, and May, in 1891. In the subsequent years he offered

only mixed gladioli until 1895, when he again offered the varieties named. Unnamed seedlings one and two years old, raised from English-, French-, German-, and American-grown seed, were offered in 1891, and no doubt many of the later introductions of other growers came from this or similar sources. Isabel, Jessie, Margaret, and New America are some of Crawford's more recent varieties.

Then came the introduction of the *Childsii* varieties, remarkable for their vigor of growth and large flowers. These have had an important part in the development of American gladioli and in the increase of the flower in popular favor.

Any account of the development of American gladioli would be incomplete without mention of the work of H. H. Groff, of Simcoe, Ontario. His work was begun prior to 1890, and for years he has been breeding to eliminate the weakness of existing types. Using the strongest parents, and particularly those of individual merit (and he is unexcelled in his knowledge of varieties), he has practiced a rigid selection among his seedlings. The result is that the name Groff's Hybrids, as applied to his own named varieties, has become a synonym of merit. Through cooperation with Arthur Cowee, whose ability as a grower and exhibitor equals that of Mr. Groff as a breeder, these hybrids have become widely and thoroughly known.

The popularity of gladioli as garden flowers is due to Mr. Cowee in larger degree than to any other person. He has labored for many years to bring the merits of the flower to the attention of the people. The splendid exhibits he has made at expositions and fairs, his attractive advertising in magazines and in his catalogs, and more than all his personal enthusiasm, have served to place gladioli in the foremost rank among the garden flowers of the United States. Without the interest of the people many of the present growers would not find a market for their bulbs. All the growers, and garden lovers generally, owe much to the pioneer efforts of the gardeners of Boston, and to Childs, Crawford, Cowee, and Groff.

The ruffled gladioli produced by A. E. Kunderd, of Goshen, Indiana, are a distinctly new and original American type. The flowers are distinguished by the peculiar ruffling or fluting of the petals, producing an artistic effect approaching that seen in waved sweet peas. The first variety introduced was Kunderdi Glory. The ruffled gladioli are the result of experiments, begun about 1896, in crossing and selection of plants showing the ruffled tendency.

American growers do not depend on the novelties sent out by foreign firms, for they have produced numerous varieties better suited to this soil and climate. A study of these varieties often reveals the fact that

they are not clearly of any particular type of gladioli, and they are referred to as *American*, by which is meant that they have been produced here and are the result of so much intercrossing of previous forms that they stand alone. As has been done with the carnation, the gladiolus growers are making a new and distinctly American type of plant and flower. Through the breaking of Old World fetters and limitations the way is open to further achievement, for which the future holds bright prospects for American gladiolus breeders.

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COLOR PLATES AND FIGURES

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alatus Linn.

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alatus var. *namaquensis* Ker

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 Ker, *Curtis's Bot. mag.* 16, tab. 592. 1802.

angustus Linn.

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 Ker, *Curtis's Bot. mag.* 17, tab. 602. 1802.
 Redoute, *Les liliacées*, tab. 344.

blandus Aiton

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blandus var. *albidus* Jacq.

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Gladiolus (continued):

blandus var. *carneus* De la Roche

Andrews, Bot. repos., tab. 188 under title *G. campanulatus*.

Ker, Curtis's Bot. mag. 18, tab. 645. 1803.

blandus var. *Mortoni* Herb.

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brachyandrus Baker

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brevifolius Jacq.

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byzantinus (Bauhin) Miller

Ker, Curtis's Bot. mag. 22, tab. 874. 1805.

Reichenbach, Icon. bot. seu plant. crit., tab. 643.

cardinalis Curt.

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Redoute, Les liliacées, tab. 112.

Reider, Annalen der Blumenisterei 2:125. 1827.

Schneevoogt, Icones plant. rar., tab. 27.

carmineus Wright

Wright, Curtis's Bot. mag. 132, tab. 8068. 1906.

cochleatus Sweet

Sweet, Brit. flow. gard., ser. 2, tab. 140.

communis Linn.

Curtis, Bot. mag. 3, tab. 86. 1789.

Ker, Curtis's Bot. mag. 38, tab. 1575. 1813.

Redoute, Les liliacées, tab. 267.

Reichenbach, Icones florae germ. et helv. 9, tab. 349.

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Schlechtendal, Flora von Deutschland 4, tab. 308. 1880.

Hallier, Deutschlands Flora, tab. 396. 1873-75.

cruentus Moore

Hooker, J. D., Curtis's Bot. mag. 95, tab. 5810. 1869.

Moore, Florist and pomologist, 1869, p. 121.

cuspidatus Jacq.

Andrews, Bot. repos., tab. 219.

Jacquin, Icones plant. rar., tab. 257.

Ker, Curtis's Bot. mag. 16, tab. 582. 1802.

Redoute, Les liliacées, tab. 136.

cuspidatus var. *ventricosus* Lam.

Andrews, Bot. repos., tab. 147 under title *G. cuspidatus*.

Jacquin, Icones plant. rar., tab. 255 under title *G. carneus*.

Ker, Curtis's Bot. mag., tab. 591 under title *G. carneus*.

Redoute, Les liliacées, tab. 36 under title *G. cuspidatus*.

debilis Ker

Ker, Curtis's Bot. mag. 52, tab. 2585. 1825.

Marloth, Flora South Africa 4:155, tab. 47. 1915.

dracocephalus Hook. f.

Hooker, J. D., Curtis's Bot. mag., tab. 5884.

Eckloni Lehm.

Baker, Curtis's Bot. mag. 103, tab. 6335. 1877.

edulis Burch. ex Ker

Ker, Bot. reg. 2, tab. 169. 1817.

florentiae Marl.

Marloth, Flora South Africa 4:155, tab. 47. 1915.

floribundus Jacq.

Andrews, Bot. repos., tab. 118 under title *G. grandiflorus*.

Jacquin, Icones plant. rar., tab. 254.

Gladiolus (continued):*floribundus* Jacq. (continued):

Ker, Curtis's Bot. mag. 17, tab. 610. 1802.

La Belgique horticole, 1859, plate 23.

gandavensis

Paxton, Mag. bot. 11:27. 1844.

Van Houtte, Flore des serres 2, tab. 1. 1846.

Van Houtte, Revue horticole 18:141-142. 1846.

gandavensis var. *citrinus* (Lemonier)

Van Houtte, Flore des serres 5, tab. 538. 1849.

gandavensis var. *superba*

Paxton, Mag. bot. 13:190. 1847.

gracilis Jacq.

Jacquín, Icones plant. rar., tab. 246.

Ker, Curtis's Bot. mag. 16, tab. 562. 1802.

Marloth, Flora South Africa 4:153, tab. 46. 1915.

Redoute, Les liliacées, tab. 425.

grandis Thunb.

Andrews, Bot. repos., tab. 19 under title *G. versicolor*.

Ker, Curtis's Bot. mag., tab. 1042 under title *G. versicolor*.

Marloth, Flora South Africa 4:157, tab. 48. 1915.

hirsutus Jacq.

Andrews, Bot. repos., tab. 11 under title *G. roseus*.

Herbier générale de l'amateur 2, tab. 127 under title *G. hirsutus* var. *roseus*. 1817.

Jacquín, Icones plant. rar., tab. 250.

Ker, Curtis's Bot. mag. 16, tab. 574 under title *G. hirsutus* var. *roseus*. 1802.

Redoute, Les liliacées, tab. 273.

hyalinus Jacq.

Jacquín, Icones plant. rar., tab. 242 under title *G. strictus*.

illyricus Koch

Babington, Seemann's Journ. bot. 1, tab. 4. 1863.

Reichenbach, Icones florae germ. et helv. 9, tab. 352.

Schlechtendal, Flora von Deutschland 4:65, tab. 309. 1880.

Sowerby and Smith, English botany 9, tab. 1493. 1842.

imbricatus Linn.

Reichenbach, Icones florae germ. et helv. 9, tab. 350.

Reichenbach, Icon. bot. seu plant. crit., tab. 599.

Schlechtendal, Flora von Deutschland 4:66, tab. 310. 1880.

Kotschyanus Boiss.

Baker, Curtis's Bot. mag. 112, tab. 6897. 1886.

Ludwigii var. *calvatus* Baker

Baker, Curtis's Bot. mag. 103, tab. 6291 under title *G. ochroleucus*. 1877.

Mackinderi Hook.

Hooker, J. D., Curtis's Bot. mag. 128, tab. 7860. 1902.

maculatus Sweet

Marloth, Flora South Africa 4:158, tab. 48. 1915.

Masoniorum Baker

Wright, Curtis's Bot. mag. 140, tab. 8548. 1914.

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Milleri Ker

Ker, Curtis's Bot. mag. 17, tab. 632. 1803.

montanus Linn.

Loddiges, Bot. cab. 11, tab. 1022 under title *Antholyza montana*. 1825.

niveni Baker

Andrews, Bot. repos., tab. 275 under title *G. ringens* var. *undulatus*.

oppositiflorus Herb.

Baker, Curtis's Bot. mag. 119, tab. 7292. 1893.

Watson (?), Garden 45:440-441. 1894.

orchidiflorus Andr.

Andrews, Bot. repos., tab. 241.

Jacquín, Icones plant. rar., tab. 259 under title *G. alatus*.

Ker, Curtis's Bot. mag. 18, tab. 688 under title *G. viperatus*. 1803.

Sweet, Brit. flow. gard., ser. 1, tab. 156 under title *G. viperatus*. 1826-27.

Gladiolus (*continued*):*palustris* Gaud.

Reichenbach, Icones florae germ. et helv. 9, tab. 351.

Schlechtendal, Flora von Deutschland 4:62, tab. 307. 1880.

papilio Hook.

Hooker, J. D., Curtis's Bot. mag. 92, tab. 5565. 1866.

psittacinus Hook.

Hooker, W. J., Curtis's Bot. mag. 57, tab. 3032. 1830.

Lindley, Bot. reg. 17, tab. 1442. 1831.

Loddiges, Bot. cab., tab. 1756 under title *G. natalensis*.

Reichenbach, Exot., tab. 116.

Sweet, Brit. flow. gard., ser. 2, tab. 281. 1835.

psittacinus var. *Cooperi* Baker

Baker, Curtis's Bot. mag. 101, tab. 6202. 1875.

purpureo-auratus Hook. f.

Hooker, J. D., Curtis's Bot. mag. 98, tab. 5944. 1872.

Van Houtte, Flore des serres 19, tab. 1992. 1873.

Quartinianus A. Rich.

Baker, Curtis's Bot. mag. 110, tab. 6739. 1884.

recurvus Linn.Andrews, Bot. repos., tabs. 27 and 227 under title *G. ringens*.Jacquin, Icones plant. rar., tab. 247 under title *G. punctatus*.

Ker, Curtis's Bot. mag. 16, tab. 578. 1802.

La Belgique horticole, 1859, plate 23 under title *G. ringens* Andr.

Marloth, Flora South Africa 4:156, tab. 47. 1915.

Redoute, Les liliacées, tab. 123 under title *G. ringens*.

Van Houtte, Flore des serres 4, tab. 422. 1848.

Saundersii Hook. f.

Hooker, J. D., Curtis's Bot. mag. 96, tab. 5873. 1870.

Saunders, Garden 12:64. 1877.

segetum Ker

Hallier, Deutschlands Flora, tab. 386. 1873-75.

Ker, Curtis's Bot. mag. 19, tab. 719. 1804.

Reichenbach, Icones florae germ. et helv. 9, tab. 353.

Reichenbach, Icon. bot. seu plant. crit., tab. 600.

Schlechtendal, Flora von Deutschland 4:67, tab. 353. 1880.

sericeo-villosus Hook.

Hooker, W. J., Curtis's Bot. mag. 90, tab. 5427. 1864.

spathaceus Pappe

Marloth, Flora South Africa 4:158, tab. 48. 1915.

striatus Jacq.

Jacquin, Icones plant. rar., tab. 260.

sulphureus De Graaf

Hooker, J. D., Curtis's Bot. mag. 127, tab. 7791. 1901.

Molkenboer, Jaarboek Tuinbouw, 1850, p. 39.

tenellus Jacq.

Jacquin, Icones plant. rar., tab. 248.

Marloth, Flora South Africa 4:157, tab. 48. 1915.

trichonemifolius Ker

Ker, Curtis's Bot. mag. 36, tab. 1483. 1812.

tristis Linn.

Curtis, Bot. mag. 8, tab. 272. 1794.

Ehret and Trew, Plantae selectae, 1750-1773, tab. 39 under title *G. bifolius et biflorus, folius quadrangularis*.

Jacquin, Icones plant. rar., tab. 243.

Ker, Curtis's Bot. mag., tab. 1098.

Redoute, Les liliacées, tab. 35 under title *G. spiralis*.*tristis* var. *concolor* Salisb.Jacquin, Icones plant. rar., tab. 245 under title *G. tristis*.

Marloth, Flora South Africa 4, tab. 46. 1915.

Salisbury, Paradisus Londinensis, tab. 8.

Gladiolus (*continued*):*undulatus* Jacq.Jacquin, *Icones plant. rar.*, tab. 251.Ker, *Curtis's Bot. mag.* 18, tab. 647. 1803.Redoute, *Les liliacées*, tab. 122.*villosus* KerKer, *Curtis's Bot. mag.* 21, tab. 823 under title *G. hirsutus* var. 1805.*vittatus* Hornem.Ker, *Curtis's Bot. mag.* 15, tab. 538 under title *G. undulatus*. 1801.Schneevoogt, *Icones plant. rar.*, tab. 19 under title *G. angustus*.*vomerulus* KerKer, *Curtis's Bot. mag.* 38, tab. 1564 under title *G. hastatus*. 1813.

HYBRID GLADIOLI

Gladiolus:

antwerpiensis

Flor. cab. 10:265. 1842.

Christianus- *Revue hort.* 23:341. 1851.*Colvillei*Maund, *Bot. gard.* 5:4, tab. 167, fig. 5.Mrs. Loudon, *Ladies' flow. gard.*, Bulbs, tab. 13, fig. 5, p. 61. 1841.Sweet, *Brit. flow. gard.*, ser. 1, tab. 155. 1826-27.Van Houtte, *Flore des serres* 19, tab. 1993. 1873.*Colvillei albus*Pucci, *Bul. Roy. Soc. Toscana Ort.* 23, tab. 7. 1898.Van Houtte, *Flore des serres* 19, tab. 1993.*Delbarinus* (Delbaere)

Ann. Soc. Roy. Hort. Gand 3, tab. 158. 1847.

hybridus Lemoine

Amer. gard. n. s. (1:5). 1882.

Garden 17:306. 1880.

*ignescens*Maund, *Bot. gard.* 6:136, tab. 233, fig. 2.*insignis*Paxton, *Mag. bot.* 7:223. 1840.*Lemoinei*

Amer. gard. n. s. 1:5. 1882.

Revue hort. 51:330. 1879.

Leopoldii (Carolus)

Ann. Soc. Roy. Hort. Gand 4, tab. 194. 1848.

*milchamiensis*Herbert, *Trans. Hort. Soc. London* 4, tab. 2 under title *G. tristis-hirsutus*.*oldfordiensis* (Cole)Moore, *Gard. mag. bot., hort., and flor.*, 1850, p. 249.*picta blandas* (Plant)

Flor. cab. 6:264. 1838.

primulinus hybrids

Garden 76:391. 1912.

Garnier, *Revue hort.* 82:578-579. 1910.*princeps* (Van Fleet)

Revue hort. 76:208-209. 1904.

pudibundus (Herbert)Paxton, *Mag. bot.* 2:197. 1836.Sweet, *Brit. flow. gard.*, ser. 2, tab. 176. 1833.*Quartinianus superbus*

Garden 55:388-389. 1899.

ramosus

Flor. cab. 7:143. 1839.

Maund, *Bot. gard.* 6:165, tab. 238, fig. 2.Mrs. Loudon, *Ladies' flow. gard.*, Bulbs, tab. 12, fig. 1.Paxton, *Mag. bot.* 6:99. 1839.

Gladiolus (*continued*):*rigidus* (Herbert)Herbert, Trans. Hort. Soc. London 4, tab. 2 under title *G. tristis-blandus*.*ringente-tristis* (Herbert)

Herbert, Trans. Hort. Soc. London 4, tab. 2.

roseo-purpureus

Flor. cab. 19:6. 1851.

Moore, Gard. mag. bot., hort., and flor., 1850, p. 249.

Willmoreanus (Cole)

Moore, Gard. mag. bot., hort., and flor., 1850, p. 169.

Van Houtte, Flore des serres 6, tab. 639.

HORTICULTURAL VARIETIES

Ad. Brongniart (Souchet)

Floral mag. 6, tab. 363. 1867.

Aida (Haage & Schmidt)

Deut. Mag. Gart. u. Samenkunde, 1878, p. 371.

Alice Wilson (Standish)

Flor. and pomol., 1873, p. 73.

Alphonse Lavallee

L'hort. franç., 1856, tab. 20.

Alsace

Revue hort. Belge 13:227, tab. 23. 1887.

Alsace-Lorraine (Lemoine), *nanceianus* var.

Jardin, 1902, p. 216.

Prakt. Ratgeber Obst u. Gartenbau 19:360. 1904.

Aristote

Illus. hort. 4, tab. 154, fig. 4. 1857.

Arlequin (Souchet)

Flore des serres 12, tab. 1246. 1857.

Illus. hort. 4, tab. 154, fig. 8. 1857.

Atroroseus

Florists' journ. 3:177. 1842.

Bala (Kelway 1911)

Garden 76:437. 1912.

Baron Joseph Hulot (Lemoine 1896), *Lemoinei* var.

Revue hort. 71:404. 1899.

Beatrice

Garden 17:156. 1880.

Ben Hur (Childs), *Childsii* var.

Garden 48:420. 1895.

Bernard de Rennes (Truffaut)

Revue hort. 23:341.

Berthe Rabourdin

Flor. fruit and gard. misc., 1859, p. 97.

Illus. hort. 4, tab. 154, fig. 5. 1857.

Blushing Bride

Garden 34:580. 1888.

Revue hort. 71:111, fig. 4. 1899.

Boussingault (Lemoine 1887)

Revue hort. 50:228. 1888.

Bramfarine (E. Aragon)

Revue hort. 39:131-132. 1867.

Calypso

Illus. hort. 6, 227, fig. 5. 1859.

Illus. Gart. Ztg., 1860, p. 128.

Canari

Illus. hort. 6, tab. 227, fig. 1. 1859.

Illus. Gart. Ztg., 1860, p. 128.

Charles Davis (Standish)

Flor. mag. 3, tab. 171. 1863.

- Charles McIntosh
 Revue hort. **71**:111, fig. 5. 1899.
- Christophe Longueil (Dr. d'Avoine)
 Ann. Soc. Roy. Hort. Gand, 1849, tab. 239.
- Cochennille (Verdier père)
 L'hort. franç., 1851, tab. 23.
- Comte de Kerchove (Lemoine 1896), *Lemoinei* var.
 Revue hort. Belge **23**:217.
- Countess Coghén
 Ann. Soc. Roy. Hort. Gand **3**:51. 1847.
- Countess Craven (Kelway)
 Flor. mag. **20**:465-466. 1881.
- Couranti carneus (Thibaut et Keteleer)
 L'hort. franç., 1852, tab. 15-16.
- Crepuscul (Lemoine 1899)
 Prakt. Ratgeber Obst u. Gartenbau **19**:360. 1904.
- Dame Blanche (Haage & Schmidt)
 Revue hort. **68**:540. 1896.
- Demi-deuil (Lemoine 1899), *Lemoinei* var.
 Jardin, 1902, p. 216.
- Diane
 Illus. hort. **6**, tab. 227, fig. 8. 1859.
 Illus. Gart. Ztg., 1860, p. 128.
- Docteur Spae (Truffaut)
 L'hort. franç., 1851, tab. 19, fig. 2.
- Duc de Malakoff
 Illus. hort. **6**, tab. 227, fig. 3. 1859.
 Illus. Gart. Ztg., 1860, p. 128.
- Ed. Pynaert-Van Geert (Lemoine)
 Revue hort. Belge **18**, tab. 19-20, fig. 5. 1892.
- Eleanor Norman
 Flor. mag. **4**, tab. 222. 1864.
- Elvira
 Revue hort. **71**:111, fig. 7. 1899.
- Emile Galle (Lemoine 1887)
 Revue hort. **63**:568. 1891.
- Emperor Napoleon [=Marechal Vaillant] (Leveau, Loise 1866)
 Revue hort. **38**:8-9, fig. 2. 1866.
- Ethiope (Lemoine 1898), *Lemoinei* var.
 Revue hort. **71**:404. 1899.
- Eugénie Bourdier (Truffaut)
 Flore des serres **7**, tab. 697, fig. 1. 1851-52.
- E. V. Hallock (Lemoine), *Lemoinei* var.
 Illus. hort. **37**:107, tab. 115, fig. 3. 1890.
- Ferdinand de Lesseps (Lemoine)
 Revue hort. **63**:568. 1891.
- Ferdinand Kegeljan (Lemoine), *nanceianus* var.
 Jardin, 1900, p. 348.
- Fille de l'Air (Lemoine 1897), *nanceianus* var.
 Revue hort. **71**:404. 1899.
- Flaming Sword (Kelway 1911)
 Garden **76**:182, tab. 1449. 1912.
 Garden **76**:437.
- Francis Herincq
 L'hort. franç., 1853, tab. 20.
- Gen. Changarnier (Truffaut)
 Flore des serres **7**, tab. 697, fig. 3. 1851-52.
- General Grant
 Revue hort. **71**:111, fig. 6. 1899.
- General Scott
 Garden **34**:580, fig. 3. 1888.
- Georges Frick (Lemoine), *nanceianus* var.
 Jardin, 1900, p. 348.

- Georges van Rye (Dr. d'Avoine)
Ann. Soc. Roy. Hort. Gand, 1849, tab. 239.
- Goethe (Haage & Schmidt)
Deut. Mag. Gart. u. Samenkunde, 1878, p. 371-378.
- Goliath (Souchet)
Illus. hort. 4, tab. 154, fig. 1. 1857.
- Harry Veitch (Lemoine 1890), *nanceianus* var.
Garden 41:190. 1892.
- Henri Vautier (Lemoine 1898), *nanceianus* var.
Revue hort. 71:404. 1899.
- Henry Irving
Revue hort. 71:111, fig. 2. 1899.
- Horace (Souchet 1869)
Flor. mag. 9, tab. 507-508. 1870.
- Imperatrice Eugénie (Souchet)
Illus. hort. 14, tab. 504, fig. 1. 1867.
- Innocence (Vick 1883)
Vick's mag., Feb. 1885.
- Iris (Ragot)
Revue hort. 85:35. 1913.
- Isoline
Illus. hort. 6, tab. 227, fig. 2. 1859.
Illus. Gart. Ztg., 1860, p. 128.
- Jacob (E. Aragon)
Revue hort. 39:131. 1867.
- James William Kelway (Kelway 1911)
Garden 76:437. 1912.
- Jean Ragot (Ragot)
Revue hort. 85:35. 1913.
- John Laing (Lemoine)
Illus. hort. 37:107, tab. 115. 1890.
- John Standish (Douglas)
Flor. and pomol., 1872, p. 169.
- John Standish (Standish)
Deut. Mag. Gart. u. Samenkunde, 1863, p. 353.
Flor. fruit and gard. misc., 1860, p. 231.
Flor. mag. 1, tab. 36. 1861.
- John Waterer (Souchet)
Illus. hort. 14, tab. 504, fig. 3. 1867.
- Julia (Kelway)
Flor. mag. 7, tab. 405. 1868.
- Jupiter (Souchet 1871)
Flor. mag. n. s. 11, tab. 43. 1872.
- King of Gladioli (Kelway 1905)
Garden 70:6. 1906.
- Kleber (Lemoine 1890)
Garden 41:190. 1892.
Revue hort. Belge 18:217, tab. 19-20, fig. 1. 1892.
- Konigen Wilhelmina
Gartenflora 46, tab. 1437.
- Lady Alice Hill (Standish)
Flor. and pomol., 1868, p. 241.
- Lady Muriel Digby (Kelway 1904)
Garden 76:182, tab. 1449. 1912.
- La France (Lemoine)
Garden 30:76. 1886.
- L'Alsace (Lemoine)
Garden 30:76. 1886.
- Le Chamois (Souchet)
Flore des serres 12, tab. 1246. 1857.
- Le Grand Carnot (Lemoine 1890), *nanceianus* var.
Revue hort. Belge 18:217, tab. 19-20, fig. 6. 1892.

- Leopoldii
Ann. Soc. Roy. Hort. Gand 4:173. 1848.
- Le Pactole
Revue hort. 63:568. 1891.
- Louis Van Houtte (Truffaut)
Revue hort. 60:228. 1888.
- Madame Chauvière (Truffaut)
L'hort. franç., 1851, tab. 19, fig. 1.
- Madame de Vilain
Ann. Soc. Roy. Hort. Gand 3:51. 1847.
- Madame Dombrain (Souchet 1868)
Flor. mag. 8, tabs. 463-464. 1869.
- Madame Eugène Verdier
L'hort. franç., 1856, tab. 20.
- Madame Ferdinand Cayeux (Lemoine 1900), *Lemoinei* var.
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- Madame Furtado (Souchet)
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Culture and Hybridization of the Gladiolus

Alfred C. Hottes



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PREFACE

The data for this bulletin are based on the results of four years of work in the trial grounds of the American Gladiolus Society, and on conversations and correspondence with many gladiolus experts. In 1913 question blanks were mailed to members of the American Gladiolus Society and to some of the growers in Europe. Much information was derived from this questionnaire. The writer wishes to thank the following for their assistance in this work:

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ALFRED C. HOTTES

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INDOOR TYPE OF GLADIOLI
NANUS VARIETIES: PEACH BLOSSOM (PINK)
AND MODESTY (WHITE)

GLADIOLUS STUDIES—II

CULTURE AND HYBRIDIZATION OF THE GLADIOLUS

ALFRED C. HOTTES

THE GLADIOLUS AS A CUT FLOWER AND AS A GARDEN SUBJECT

"Gladioli to cut, cannas for out-of-doors," writes B. C. Auten. In the same strain ex-President Hendrickson (1911),¹ of the American Gladiolus Society, writes:

The gladiolus is essentially a cut flower, and will rival nearly any other in keeping qualities, as they can be kept fresh and beautiful after cutting for a period of five to ten days by changing the water daily and removing each day the withered blooms, it also helps to nip off the ends of the spike when changing the water. If the spikes are cut when the first two or three flowers have opened, the entire stalk will open out for us after it has been put in water. They are very adaptable to send to friends at a distance, as they will arrive in excellent condition if just a little pains are taken when shipping. If we want to do this the spikes should be cut when the first flower opens, and put in water in the cellar or cool place for two or three hours, so they can take up a good drink, after which they will stand the journey of two or three days, and when placed in water will quickly respond and unfold their gorgeous petals.

Miss Re Shore (1911) speaks further of the gladiolus as a cut flower. She writes that they are "best with their own foliage and in tall, slender, clear glass vases. . . . One special feature to their credit is that they do not fall to pieces in the house."



PHOTOGRAPH LENT BY MRS. B. H. TRACY

FIG. 10. ROUGE TORCH

Soft creamy yellow in color with a brilliant red tongue on the lower petals. This is one of the slender-stemmed varieties, and lends itself particularly well to all manner of arrangement

¹ Dates in parenthesis refer to bibliography, page 259.

Groff (1906 b) gives the following excellent suggestions for the care of the cut blooms:

Cut the spike when the first flower opens and place in water without overcrowding. Remove the terminal buds soon, as this checks stalk development and throws the strength into the larger and earlier maturing flowers. The end of the stalk should be shortened and the water renewed daily with frequent cleansing of the vases. In shortening the stalk cut diagonally, to insure free absorption of water by the spike without the contamination and obstruction, caused by sediment, if cut at a right angle.

. . . . Blooming the spikes in the shade of room or piazza modifies the field colors, from bright shades and tints to delicate flushes and shadings, and also reduces the latter types to the faintest tinge of color or white. . . .

The advent of my new hybrids producing the most intense and deep shades of violet, purple, crimson and scarlet makes it desirable that these brilliant combinations be preserved when the spikes are cut for decorative purposes.

To ensure this most desirable result, place the vases of these highly colored types in the early morning sun for an hour or two daily, preferably after renovation and renewal of the water. . . .

* * * * *

One of the causes of the popularity of the gladiolus as a decorative flower, is the fact that it has no perfume, as there are few flowers used for this purpose that are not distasteful to some one—particularly in closed rooms—either from personal preference or painful association.

Where the pollen proves irritating to the tissues of the respiratory organs the anthers may be easily pinched out during the daily renovation. . . . This removal of the anthers is desirable in the highly colored types, where the shed pollen dulls the brilliancy of the petals on which it may fall.

The consideration of the gladiolus as a cut flower is not complete without a discussion as to the proper way to cut a spike. A corm is a thickened base of a stem, and this being the case there must be leaves remaining to nourish and feed this corm. Thus, in cutting the blooms, two or three leaves should always be left on the plant. The spike may be cut with a short enough stem to accommodate this balance, or one may merely cut into the leaves and through the stem, taking only enough leaves to be used in the bouquets. Cutting the stems too long is a common mistake of the amateur.

The spikes are being used more and more in the making of floral designs, for bases of standing wreaths, and in large clusters for sprays. The individual flowers have in many cases taken the place of lilies and orchids in wedding and presentation bouquets and baskets. The graceful spikes of the *Gladiolus nanus* varieties are especially valuable for corsage bouquets or for small baskets, or arranged in flower holders, or japanas, placed in bowls of water. If these varieties were better known and appreciated, the demand would be great. Many of the large flower shops use them when they can be obtained. As a summer flower for large decorations the gladiolus is unexcelled, especially when placed in large vases or hampers and used on porches or yachts, or in hotels, summer resorts, churches, or automobiles.

Excellent results are obtained by careful selection of the receptacle for the flowers. Wall vases containing a few spikes, carefully arranged,

are sure to be interesting. Plain vases and simple baskets are to be preferred to highly decorated ones, since the gladiolus is gay in itself. Many



PHOTOGRAPH LENT BY MRS. B. H. TRACY

FIG. II. DAYBREAK

A charming rose-bowl decoration. These spikes had been cut for a week. A suggested use for spikes that are nearly through blooming

of the individual spikes are so beautiful that if arranged alone in a vase their separate charms are more effective than if more than one are used.

Curved spikes are indispensable for some of the most effective arrangements, especially in huge hampers. Large vases of one variety, such as *Brenchleyensis*, Hazel Harvey, Mrs. Francis King, and some other darker varieties, are effective when combined with the variegated-leaved corn (*Zea mays* var. *japonica*). Mrs. B. H. Tracy deserves much credit for popularizing this flower in a decorative way by exhibiting the blooms properly, for she has made many advances in arrangement over the ordinary method of using uninteresting vases and inappropriate receptacles.

In addition to the value of the gladiolus as a cut flower, it is especially attractive also as a garden subject when planted thickly in clumps or beds. Soil well prepared will allow a good development of the spikes, even if the corms have been very closely set. Unless used in masses, the plants are likely to appear rather spindling; but when properly planted, the bed of gladioli is one of the most showy features of summer or autumn. The beds so used need not be for gladioli exclusively, but may have some annuals or perennials growing with them. Good combinations result from planting early in the spring a bed of white *Phlox Drummondii*, and later using the gladiolus *America* between the plants; or pink phlox and the gladiolus *Rochester White* may be combined. Especially effective is the combination of gladiolus with the summer hyacinth (*Galtonia* [= *Hyacinthus*] *candicans*), the tall spikes of white bloom and the bold foliage of the latter seeming especially harmonious. No better combination is available than that which results from the planting of some corms among irises, which have leaves in perfect harmony with the gladiolus and which bloom in a widely separated season.

The stately spikes are attractive when used in large clumps of one variety among shrubbery. Care must be taken not to place the plants within the detrimental influence of large tree roots or in too much shade. Gardeners frequently start certain good varieties in boxes or pots, and, when in full growth, transplant them in clumps to places in the border where a bit of color is needed after some other plants have failed.

Miss Andres (1914) advocates combining columbines, petunias, and gladioli, not only because of their colors, but also, and mainly, for the excellent succession of bloom provided.

Bold masses of *Gladiolus primulinus* hybrids (fig. 12) are extremely effective, since their various colors blend so well. Blue Jay and Baron Joseph Hulot are violet and blue varieties which harmonize well with yellow varieties, such as Golden King or Sulphur King.

Excellent combinations have been made with roses and gladioli. The June-flowering roses are best for this purpose, since they are entirely out of season when the gladiolus is at its best.

The accusation that the gladiolus is stiff and formal does not now hold. The modern gladiolus is stately and dignified, and deserves prominent consideration and a place in every home or palace. It is a regal flower available to all.

SOILS FOR THE GLADIOLUS

Soil technologists emphasize the fact that a proper physical condition of the soil is quite as important for the growth of a crop as is the richness; in other words, the tilth and handling of the soil is as much to be considered as the actual chemical analysis. Various opinions have prevailed, and still persist, regarding proper garden soil for gladioli.

Dombrain (1873) mentions the former belief that there was no soil too poor for the gladiolus, and states that advice was given that if the soil were not poor enough it had better be charred or burned to make it so. However, as he says, experience proved this to be unsound, and a rich soil was considered by no means unsuitable. Then came the high pressure treatment; heaps of manure in the soil, heavy top-dressings above it, and then what blooms we shall have! But the strongest advocates of this system found that they had been a little too fast, and that although they obtained fine blooms, they lost their bulbs. Since then a more moderate system has been practised.

The depth of planting will obviously differ with the soil. The lighter the soil, the deeper the corms may be planted. Deep planting is especially successful in dry seasons, because the roots are in cool, moist soil. Usually, with deep planting, staking will be unnecessary. There is danger in deep planting in a heavy,



FIG. 12. PRIMULINUS SEEDLINGS

The *primulinus* seedlings include a group of graceful varieties all of which have distinctly hooded blooms. The colors are charming, following the influence of the clear primrose-yellow of the *primulinus* parent as well as of the delicate intermediate colors possessed by other parents, which in many cases are *Lemoinei*, *Childsi*, or *nanceianus* varieties

moisture-holding soil. The soil may be too wet and may cause a rotting of the young shoots as well as the corms. If the soil is too clayey the shoots may not have strength enough to emerge, or they may be twisted, and thus made unable to produce a good, strong spike. The following data are valuable for showing the various practices and opinions as to the best soil for proper growth of the plants:

Grower	Depth to plant (inches)	Type of soil	Soil preferred
Atkinson.....	4	Light loam.....	Light loam, good bottom drainage
Austin.....	4	Sandy loam.....	Sandy loam
Auten.....	3-4	Prairie.....	No. limestone nor dressings of lime
Babcock.....	3-5	Gravelly.....	
Barnes.....	4	Sandy loam.....	Sandy loam
Bassett.....	4-6	Light and sandy.....	
Betscher.....	3-6	Sandy loam.....	Good clay loam, but dependent on season
Black.....	2-6	Sandy loam.....	Sandy loam
Bonvallet.....	4	Sandy.....	Sandy loam
Brown.....	4-6	Sandy loam.....	Considerable sand
Bull.....	4	Stiff loam.....	Stiff loam
Burbank.....	6	Sand and heavy clay.....	Sandy loam; new soil
Crawford, M.....	4	Heavy clay loam.....	Sandy loam
Crawford, N. L.....	5	Loam and sandy loam.....	Loam for large corms; for the smaller, much lighter soil
Dombrain.....	4	.....	Medium
Fischer.....	4-6	Light loam.....	
Flanagan.....	5-6	Clay loam.....	Rich, level, sandy
Fuld.....	6	Heavy clay.....	Heavy clay
Gage.....	6	Sandy loam.....	Sandy loam
Hoeg.....	5	Dark clay loam.....	
Huntington.....	3-4	Light.....	Heavy
Hutchinson.....	4	Light loam.....	Light loam, but damp
Macomber.....	2-4	Sandy loam.....	Light loam, not heavy
Moore.....	4	Sandy loam.....	Rather light to heavy
Munsell.....	4-5	Sandy loam.....	
Rand.....	2-4	.....
Re Shore.....	6-8	Sandy loam.....	
Richardson.....	6	Sandy loam.....	Light loam
de Ruyter & Hogewonig.....	.....	1½ inches sand.....	Sandy for most; plants are healthier
Spencer.....	4-6	Sandy loam.....	Sandy loam
Stewart.....	3-5	Gravelly loam.....	Loam
Tait.....	4-7	Sand.....	Sandy loam
Thomann.....	4-6	Light, not very sandy.....	Rich, deep, well-drained, not too heavy
Tracy.....	6	Gravelly.....	Gravelly or sandy
Van Fleet.....	4-6	.....	Any soil good for potatoes
White.....	3-6	Sandy loam.....	Moist loam, porous subsoil
Wilmore.....	6	Sandy loam.....	Well-drained swamp with sandy loam bottom
van Zanten.....	2	Sand.....	Clay for some, sand for others
Zeestraten.....	3	Sandy.....	Sandy soil, well drained

It is seen that many of the growers consulted prefer a sandy loam. E. H. Cushman says that the gladiolus does equally well on any soil, if given the proper culture. The commercial grower, however, who must produce stock at a profit, will choose soil as nearly ideal as possible—in other words, a light loam.

FERTILIZERS AND THEIR USE

Fertilizers applied to plants are valuable in proportion to the amount of the needed plant-food that is available. Only such nutriment as is soluble can be taken into the plant, and therefore much food is locked up, or unavailable. Some fertilizers are applied for their value in unlocking, or freeing, plant-food, rather than for their actual fertilizer value.

The production of gladiolus corms is very analagous to the production of a crop of potatoes. A good standard special potato fertilizer is therefore recommended. Such a fertilizer will be rich in phosphoric acid and potash. The gladiolus is a rank grower and a gross feeder, and responds to any treatment that increases the available plant-food. Either manures or chemicals may be applied as a fertilizer, both of which are valuable in their way. The first kind, stable manure, is of prime importance, but each year it is getting more difficult to obtain this. When possible it is well to use cow, pig, sheep, or poultry manure, rather than that from the horse. It must be borne in mind that sheep manure and poultry manure are especially strong and cannot be applied too abundantly without danger of causing too great vegetative growth, watery corms, or perhaps even a burning of the whole plant. It is thought that the gladiolus is very susceptible to the presence of any manure in contact with its roots. All manure, then, should be thoroughly incorporated with the soil, rather than left in lumps. This is best accomplished by application in the autumn.

Burrell (1898) writes:

I avoid as much as possible adding anything to the soil likely to create an excess of humus, which is harmful, in generating disease. It is generally supposed that gladioli require a light sandy soil, but . . . I would prefer to plant in heavy yellow loam. . . . Corms raised on well-prepared heavy loam I find have greater life and vigour than the large, soft, watery ones from light sandy soils, and that the size of flower and spike in no way suffers on the former, I think our exhibits over a long number of years fully bear out.

The general opinion has been that a sour soil is injurious to the gladiolus, but Chamberlain (1914 b) doubts this. He says: "Some plants thrive best in a sour soil, and is Mr. [.] dead sure that the gladiolus is not one of these? I have heard an experienced grower assert that the gladiolus prefers the acidity."

All humus-making material produces acidity when rotting in the soil. This can be easily overcome, or neutralized, by the use of lime. B. C. Auten is emphatic in his denunciation of lime. He writes: "Two years' planting upon ground limestone nearly put me out of business." Cooper (1914 c) believes that it will be necessary to use lime "rather freely where heavy applications of stable manure are made or where green manure crops are plowed under, to prevent possible excessive acidity and fungoid or scab diseases."

A method of soil treatment and enrichment is outlined by W. P. Wright substantially as follows in *Popular Garden Flowers*: In autumn remove the top soil and break up the subsoil, turning in a dressing of three inches of decayed manure. If the ground is very stiff, leaf mold and sand may be added. Leave the surface lumpy. In February, spread on a coat of wood ashes, with an additional quantity of bone flour, at the rate of three ounces per square yard, and fork it in. This operation will simultaneously reduce the lumps to small particles.

H. H. Groff has used the same land for fifteen years, and the only fertilizer he has needed is stable manure and hardwood ashes applied in the autumn before plowing. Hardwood ashes are rich in potash and phosphoric acid as well as in calcium.

B. C. Auten prefers dried blood and steamed bone, with a top-dressing of nitrate of soda and potassium sulfate or muriate. The fertilizer is applied in the seed drill at the bottom of the furrow. Steamed bone and bone meal are to be strongly advocated, since they possess the necessary phosphoric acid and potash.

Luther Burbank has used a complete fertilizer.

G. B. Babcock uses a 4-9-11 Bowker's Market Gardener's Fertilizer at the time of planting.

N. L. Crawford has used an application of five hundred pounds of potassium sulfate per acre at the time of planting, and from three to five hundred pounds more in July or August.

L. M. Gage applies barnyard manure in the fall, and a complete potato fertilizer (4-7-10) in the drills at the time of planting.

J. M. Bassett manures the soil thoroughly either in spring or in fall, and at planting time a commercial fertilizer is scattered along the furrow.

S. E. Spencer places a little sheep manure in the furrow at the time of planting, and works a chemical phosphate into the soil when the buds start.

C. W. Brown has used seven cords of manure per acre in the late fall, plowing it under at once to kill the witch grass.

C. Hoeg distributes hardwood ashes at planting, and nitrate of soda two or three times during the growing season.

W. C. Bull, of Ramsgate, England, uses "stable dung dug in during the winter, and superphosphate of lime at the rate of a double handful per square yard, dusted over the surface of the soil immediately after planting."

Mrs. K. Atkinson applies bone meal two weeks before planting. When the growth is about an inch and a half high, and again when the plants are ready to flower, they are dressed with Bull's Mixture for Plants.

J. L. Moore uses hen manure and stable manure once in three years. Besides this, he sows a cover crop of rye after the bulbs are dug, and plows under the green growth in the spring.

C. Betscher also seeds rye at the time of the last cultivation, the earlier the better. This he would, no doubt, plow under when in greatest growth and full of sap, for the green crop should not be allowed to get woody, thereby losing its greatest value as a humus maker.

W. W. Wilmore, jr., recommends bone meal and sheep manure (one part of bone meal to four parts of sheep manure) at the rate of two tons per acre, using it when the plants are about a half foot tall, thoroughly mixing it with the soil by hoeing and cultivating.

B. H. Tracy suggests the use of bone meal and lime applied in the early spring.

H. A. Richardson applies a good grade potato phosphate at the rate of one thousand pounds per acre, spreading it broadcast after the spring plowing and harrowing it in.

E. T. Barnes prefers well-rotted stable manure, applied either in the fall or in the spring before planting, often after planting and used as a mulch.

C. Zeestraten, besides applying cow manure, has used Chile saltpeter when the flowers are grown for cutting.

M. Crawford uses a complete fertilizer in the grain drill before planting, and believes nitrate of soda a valuable substance if used properly. For small areas he dissolves one ounce of nitrate of soda in ten quarts of water. When using the dry crystals, he distributes it evenly over the surface of the soil at the rate of one pound to a square rod. It is best not to risk applying the fertilizer along the row.

F. C. Thomann has used, besides sheep manure and hardwood ashes, a great deal of soot. It seems impossible to account for the freedom from disease of his Rochester White gladioli in any other way than by the probability that the soot prohibits the spread of the infection.

W. Van Fleet applies a 4-4-8 potato or truck fertilizer broadcast in the row at the rate of six hundred or one thousand pounds per acre, and works it in well before planting. He recommends the avoidance of an excessive use of tankage.

J. F. Munsell uses a 2-8-10 or a 4-6-10 fertilizer placed in the furrow before dropping the corms, or on top of the soil when the corms are partially covered.

Maurice Fuld advises sheep manure only, applied after the plants have made their appearance above ground.

Hamilton (1913) writes as follows: "Those who mix their own fertilizers use the following formula, in many cases varying it somewhat to suit individual needs: nitrate of soda, 100 pounds; sulfate of ammonia, 100 pounds; tankage, 100 pounds; acid phosphate, 100 pounds; sulphate or muriate of potash, 200 pounds."

Coleman (1914 b) writes: "We make our own fertilizer, so do not have to pay freight on 'filler.' A formula that has given us the best of satisfaction and that the Glads respond to, is represented by 50 per cent sulphate of potash, 25 per cent sulphate of ammonia and 25 per cent nitrate of soda, by weight." This is applied sparingly along the top of the row at planting.

Summarizing, it is seen that fertilizers may be applied (a) a year before planting, (b) immediately before planting, (c) in the furrow when half filled, (d) on the surface of the soil at planting, or (e) throughout the season, especially when the buds are developing. It is interesting to note the wide range of chemical fertilizers advocated by the various growers, for each of whom his particular mixture is perhaps the best.

TIME AND MANNER OF PLANTING

In the Northern States gladiolus corms may be planted in April or May, according to the season, or they may be kept until July if they do not sprout in their place of storage. They should not be planted until the danger of hard frosts is passed, although a slight frost when the shoots are still below the surface of the soil will not injure them. It is necessary to wait until the soil is somewhat dried, especially with clay soil. A corm naturally begins sending out shoots at the approach of spring, so that if the storage conditions are rather warm the corms must be planted before these growing shoots have exhausted their resources. They must be planted so as to allow the shoots to emerge readily from the soil. The shoots often grow around the corm and are difficult to manage, so that the corms need to be planted properly.

When possible a succession of bloom should be planned, the corms being planted in lots every week or ten days until July. In this way an excellent yield of blooms from a favorite variety may be obtained throughout the season.

Corms that are to be grown for rapid increase in size should be planted as early as possible, so that they may have a longer growing period and

make good vegetative growth as well as mature a large corm. Seeds and cormels also need to be planted as early as possible, so that they too may have a long growing season.

Dombrain (1873) describes a method of planting individual corms for the home garden. With a trowel he digs a hole six or seven inches deep and about five inches across, and fills this hole "with a mixture of sand, powdered charcoal, and light soil in about equal proportions, so that the bulb, when it begins to start and throw out its rootlets, has a light and dry material into which to penetrate, and thus is likely to be saved from rotting, and taking care that the top of the bulb is about four inches beneath the surface." This method, although slow and laborious, might be adaptable in the planting of choice seedlings. Usually, however, for small beds the corms may be planted with a dibber, or the bed may be dug out evenly from a depth of from six to eight inches and the corms put in place and covered evenly.

The commonest commercial method is to plant in rows, the corms being placed a little more than their own diameter apart; that is, two-inch corms are placed two and one-half or three inches apart. All bulbs over an inch in diameter are placed right side up; others are merely sown in the row as seed. B. F. White (1911) recommends setting the corms with the eyes lengthwise of the row. Many of the corms send up two or three flower stems, which will not lean over crosswise of the row as they would if the corms were planted promiscuously, for in the way suggested they help to support one another.

In large plantings the rows are frequently three feet apart. This allows for horse cultivation. The furrows are made with the plow. The fertilizer may be applied at the bottom of the furrow, which is leveled with a hand hoe. Two or three rows of corms are frequently placed in each furrow by bulb growers, since they do about as well as if planted otherwise, and, as Gage (1914 b) suggests, "it is surely much more economical to plant 100,000 bulbs on one acre than the same number using two acres or more." When planted in single rows, however, the blooms usually become larger, so that for cut-flower or exhibition purposes this method is the better.

SPRING AND SUMMER CULTURE

While the gladiolus does not require a great deal of care, it responds to good culture by increase in size of both flower and corm. After the corms are planted it is very essential that the soil be stirred frequently, in order to keep down weeds and to destroy any crust through which the young shoots cannot burst. Weeds are especially difficult to pull in a rather heavy soil after they have attained any size. By cultivation air is permitted to enter to the roots, making more plant-food available.

Shallow cultivation results in a dust mulch, which conserves the moisture by lessening the evaporation from the soil. M. Crawford says that cultivation cannot be overdone; a crop can be cultivated every day, provided the soil is in a favorable condition. It is best not to touch a clay soil when it is too wet. Care should be exercised that the cultivation be shallow. When the corms are not planted deeply, many of the main roots will be near the surface, and hand weeding may be necessary; otherwise the roots are easily injured.



FIG. 13. THE TRIAL GROUNDS OF THE AMERICAN GLADIOLUS SOCIETY

The rows were three feet and six inches apart, and the bulbs were placed nine inches apart in the row.
Each stake marks a separate variety

Instead of cultivating the gladiolus a mulch of strawy manure may be applied, or some other loose material used to imitate the same conditions as cultivation. This is not believed, however, to be as beneficial as cultivation.

When grown commercially for corms in vast acreages, it is not profitable to use any form of stake for the gladiolus. When cut flowers are wanted, it sometimes becomes necessary to employ a method of support which shall be inexpensive and efficient. Gladioli break at the union of stalk and corm. It is in order to prevent this that stakes are used. L. M. Gage places upright posts five feet apart, with two strands of cheap

twine to which the plants are tied. C. Zeestraten uses stout stakes, with a string around the plants at a height of twelve inches. J. L. Moore prefers a "heavy cord both sides of the row every ten feet, and cross twining." For individual plants slender bamboo stakes are best, the plants being tied to them with raffia or green string.

The value of deep planting in holding the plants erect has already been considered, and it has been stated that close setting of the corms will help to maintain a good, strong, self-supporting row. Many growers throw up the soil on both sides of the row. This is only done after the plants have reached a good height, and it helps to keep the blooming spikes from the mud.

An excellent method for the amateur is described by Rexford (1910). He advocates the use of green-painted barrel hoops, across which coarse binder twine is laced. This support is placed at the height of eighteen inches above the ground. In early growth the shoots can be properly directed into the meshes.

The majority of growers agree that the modern gladiolus should stand alone without support. But many varieties that are excellent in flower, color, and form do not possess a good upright habit. They must therefore be encouraged.

W. W. Wilmore, jr., of Wheat Ridge, Colorado, grows his gladioli under irrigation. This he feels to be necessary, since the early spring rains start the crop into good vigorous growth, which is checked by the heat and drouth of July and August, the only resource left being the nourishment stored up for the next season. This makes weaker corms, which in turn may be expected to produce smaller flower stalks. By the use of irrigation the plants are kept in continual growth. Wilmore (1914 a) describes his system of irrigation as follows:

For irrigation the streams are tapped by canals, which carry water into adjoining sections. The canals are tapped at intervals by sub-canals, and these in turn spread out into laterals which distribute the water directly to the fields or into reservoirs which are generally located on the highest point of the farms in order that the water may have a natural flow to all parts of the premises. It is sometimes necessary to build dikes or flumes to convey the water to these points, and in cases of long distance the water is piped in ordinary sewer pipe which is carefully cemented.

* * * * *

At the blooming season cultivation ceases, so well defined ditches may be made to carry water for the balance of the season. At the lower extremities of the rows, waste ditches are made to catch and carry off the surplus water as it passes out at the end of the rows. The waste is conveyed by this means to other plots of land or in some cases to the main lateral where it is again used.

Irrigation water is measured by inches and feet. One inch of water is that amount which will continually flow through a hole one inch square under a five inch water pressure. Ten inches of water is generally allotted to a ten acre tract of land or an approximate number of inches to each acre in a tract of larger or smaller proportions.

In extremely dry seasons irrigation is carried on by means of pumping from wells. These wells vary in size according to the amount of water needed. One of the best

I have seen is on our farm at Wheat Ridge. It is made of boiler iron in four sections, each section being four and one-half feet long and six feet in circumference, making the well eighteen feet deep. At the location of this well the water level is only six feet below the surface which gives a standing body of water twelve feet deep. When pumping, the engine throws a stream of nearly ten inches (irrigation measure) which continues almost two hours as the water runs in nearly as fast as the pump can take it out. Three pumpings can easily be made per day. For convenience wells are much more satisfactory but are more costly to operate.

On the approach of frost the gladioli must be dug up. Many of the varieties will not be very much ripened by that time, so that it is advisable to allow the plants to remain in the soil as long as possible. An ordinary frost is not injurious to the corms, but if left in the ground during a freeze they may be injured. The stock is much easier to handle if the tops are green.

Two methods are used in giving the proper treatment after digging. Some growers cut off the tops about an inch and a half above the corm, while others leave the tops on for a month or two. It is held by the latter that the leaves contain much plant-food, which they continue to deposit in the corms even after these are dug. Cutting off the tops thus produces a more poorly matured corm. Those who remove the tops immediately contend that the leaves, in trying to continue to grow, exhaust the food from the corm, and poor corms are thus produced. It is a difficult question to settle. The writer has tried both methods, and with the comparatively small number handled has preferred to let the tops remain, storing the plants in an airy place until October or November. Then the tops, the old corms, and the cormels are removed, and the whole stock is thoroughly cleaned for winter storage. For small lots, ten-pound sacks left open at the top have been used.

If the weather is favorable, it is well to allow the stock to lie on the ground to dry a little before taking it indoors. The heavy dews of autumn, however, may make the stock more moist if it is allowed to remain out over night than it would be if taken directly under shelter. A great deal of the soil can be easily shaken from the corms in the field, especially if the soil is sandy or loamy.

THE GLADIOLUS BLOOM

The gladiolus bloom consists of six perianth segments fused at their bases. There are an outer and an inner row, the outer row being considered as sepals, the inner as petals; collectively they form the perianth.² The flower may be divided also into upper and lower segments.

The perianth segments are variously arranged. The most frequent arrangement is that in which the uppermost segment is without, overlapping the adjoining segments, the lowermost is within, embraced by

² The horticulturist often applies the term *petal* to any segment of the perianth.

the contiguous segments, and the upper pair of laterals are overlapped by the lower pair of laterals. The segments may have a directly opposite arrangement, in which the upper segment of the perianth is within. This arrangement of the various segments has been called *anthotaxy* by Jackson (1889), who styles the differences in arrangement A and B. The term should be *æstivation*, and the various arrangements designated as one-, two-, and three-spotted æstivation. Jackson says:

A single spike may be composed of flowers of the first arrangement (A) wholly, or it may have flowers of both arrangements in varying numerical proportions; but the first (A) as far as noted always predominates. Flowers of the second arrangement (B) may be the first, last, or scatteringly intermediate on the spike. The two arrangements are fundamental in the flower, they are not brought about by twists in the segments. The arrangement of the cell in the ovary coincides with the varying relative position of the segments.

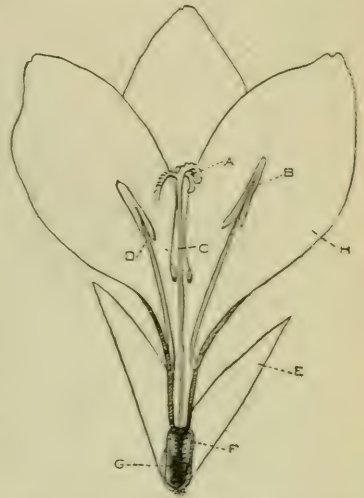


FIG. 14. LONGITUDINAL SECTION OF GLADIOLUS BLOOM

In *Gladiolus dracocephalus* and *G. purpureo-auratus*, the arrangement is of the second type. *G. psittacinus* is the only species noted in which there was a variation in arrangement. In this species most of the flowers are as in the first arrangement, but a few follow the second type of æstivation. Jackson states that the existence of two types of perianth arrangement on a single spike in a true species would be

The outer part of the flower is made up of perianth segments (H), commonly called petals, to which are attached the stamens, which are made up of anthers (B) and filaments (D). At the center of the flower is the pistil with its feathery, three-lobed stigma (A), the long thread-like style (C), and the ovary, or ovulary (F), which bears the ovules, or potential seeds (G). The base of the flower is surrounded by two leaf-like spathe-valves (E).

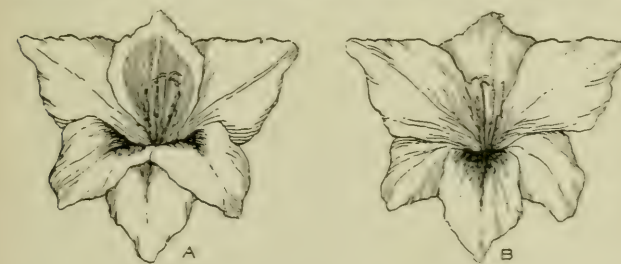


FIG. 15. ÆSTIVATION IN GLADIOLUS

A, two-lipped, the upper inner segment is a trifle arched. B, one-lipped, the outer segments are frequently somewhat reflexed

of the other type being due to other species. He thinks this suggestion is borne out by the hybrids of *G. purpureo-auratus*, for

anomalous, and its occurrence in hybrid gladioli should be considered as the inheritance of a mixed blood, the occurrence of the one-spotted lip being due to one type or species, and the inheritance

both arrangements are found in hybrids although the two-lip is characteristic.

J. G. Baker suggests terming the various lip markings as *monospite* when one-spotted and *dispite* when two-spotted.

It is quite possible that by studying this character one might find out the original parentage of many of the garden hybrids. Perhaps closer relations could be found between certain species by this means.

Bliss (1916) considers that there are four types of gladiolus bloom, as follows:

1. The zygomorphic, or normal, form
2. The reversion form
3. The actinomorphic form
4. The semi-peloriolate, or florist, form

He believes these forms to have appeared due to variations caused by exceptional or changed culture, rather than by genetic origination. In other words, they are not the results of the influence of the parent species. He differentiates the various forms as follows:

The normal flower is zygomorphic, or bilaterally symmetrical. All the flowers face in one direction and rather horizontally. The three outer segments of the perianth are about equal in size and are larger than the inner segments. The inner segments are unequal in size and vary in form and color. The upper segment is usually considerably hooded, while the lower segments are convex and have markings characteristic of the variety. The zygomorphic flowers seem ideal in form and color for attraction of insects. It is thought that they have been developed from a more primitive form—the actinomorphic, radiating, or regular form.

In the reversion form the outer segments are similar in shape and color. The inner segments also are similar, and all three have markings characteristic of the variety. The flowers of the acti-



FIG. 16. EUREKA

This variety illustrates the peculiar upright, lily-like blooms

nomorphic and reversion forms are erect and face in two directions, while the normal, or zygomorphic, form and the florist form are front-facing.

The florist form seems intermediate between the zygomorphic and actinomorphic forms, but it is still zygomorphic. In the florist form the

flowers are partly horizontal-facing, and are more erect than in the normal and less so than in the actinomorphic form. At the same time the flower often varies a little, in that one segment only is blotched. Flowers that are naturally irregular but become regular through a symmetrical repetition of the irregularity, are known as *peloric*, or *peloriate*. The florist form is thus semi-peloric.

Careful observation will determine whether this is a fair explanation of the forms. Varieties differ much in their arrangement of the various forms of flowers found on a single spike. According to Bliss (1916), there are fewer florist type flowers "when young, or crowded, or in poor soil, and more when at full size and under most favourable conditions.

. . . If the stem of a variety which usually produces all or many semi-peloriate flowers is partly cut through and bent over, the flowers, when they open, will be chiefly, if not all, of the normal form—and some even of the reversion form."

Among the varieties on the trial grounds at Cornell University, Eureka and Chalice seem excellent

examples of the reversion form. In both cases the flowers are lily-like and erect. The variety Dandy produces many flowers of the actinomorphic form. Bird of Paradise follows rather closely the arrangement of *Gladiolus oppositiflorus*.



FIG. 17. BIRD OF PARADISE

This variety illustrates the extreme *Gladiolus oppositiflorus* characters in the arrangement and large number of its flowers

It would seem that this variation in form of flower is due to hybridity, or the mingling and blending of forms from various species, rather than to the external influence of ecological factors. The angular bloom of the typical *Gladiolus gandavensis* crossed with the more bell-shaped bloom of *G. purpureo-auratus* would seem to offer a possibility of getting the semi-peloriolate form, which would be intermediate and should face nearly front, due to its parents *G. psittacinus* and *G. purpureo-auratus*, though often tending toward the decidedly opposite or two-direction facing of the parent *G. oppositiflorus*. *G. cruentus* and *G. oppositiflorus* seem to have been potent influences in eliminating the hooded character, or, in other words, to have caused a greater symmetry, or actinomorphy. It must be admitted, however, that neither solution explains the mixed arrangement of forms on a single spike.

IDEALS IN FLOWER AND IN GROWTH

The ideal form for the gladiolus bloom may now be considered. In most cases the bloom should be nearly round in outline, the upper segments broader than the three lower ones, the central segment slightly arched but not enough to be really hooded. Usually the segments should be as broad as long. The three lower segments, according to some ideals, should be equal in size and symmetrical; the lip segment or segments should not be narrow or pointed, nor smaller than the others. It must be remembered that the species *Gladiolus primulinus* is hooded and seems to transmit this quality to its seedlings. These should not be condemned for this, however, but admired. Certain other varieties, though much admired, are faulty in having extremely small and narrow lower segments.

The gladiolus is remarkable for its range of color, which varies from the most brilliant scarlet to pure white, from bright rose to clear yellow, gorgeous purple, and rich velvety maroon, beside all the intermediate shades, tints, and colors in endless combinations, together with the most unique markings. These markings are described as dots, stippling (very fine dots), splashes (long, irregular patches of color, or dashes), feathering (fine markings originating at the outer edges of the segments), mottling (irregular spots), blotches (regular, large areas of color found on the lower segments in *Lemoinei* varieties and other groups), penciling (fine lines in the throat, found especially in *gandavensis* and *Childsii* varieties), suffusion (colors laid on as though painted over another color), marbling (intermixed or clouded effects), blends (gradual transitions of one tone to another), and flecking (small dashes). Each of the wild species has contributed to this motley array of beauty. Where is there a flower with such a range of diverse markings?

For commercial use, the general consensus of opinion is that the bloom should be white, pink, scarlet, yellow, or red, or perhaps blue. Maurice Fuld objects to blue in that it does not appear to good advantage in

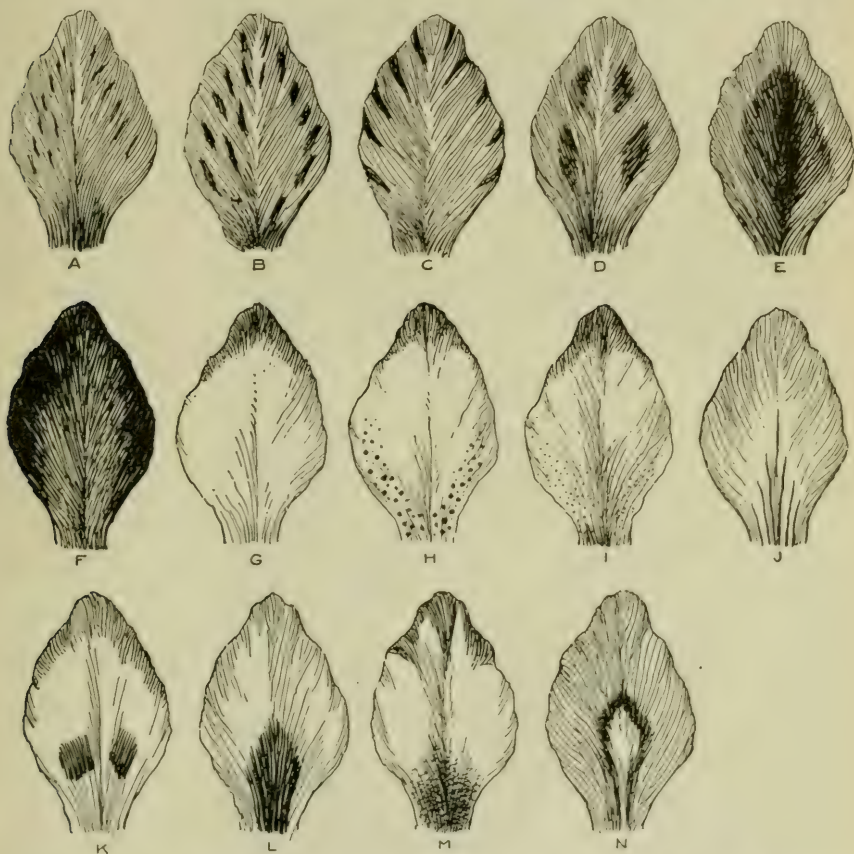


FIG. 18. MARKINGS FOUND IN PERIANTH SEGMENTS OF VARIETIES OF THE GLADIOLUS

A, flecks (very small dashes); B, dashes or splashes (long irregular dashes); C, feathering (dashes or fine markings that originate at the outer edges of the segments); D, mottling (irregular spots wider and more prominent than dashes); E, suffusion (colors laid on as though painted on another color); F, blend (gradual transition from one tone of a color to another of the same color, or from one color to some other different color); G, clear throat (unmarked in any way); H, dots; I, stippling (very fine dots in the throat); J, penciling (lines of the throat); K, mottling (irregular spots in the throat); L, blotch (regular, large areas of color, on lower segments); M, marbling (an intermixed or clouded effect); N, the lozenge blotch found in many of the *nanus* varieties in which the center is clear and the outer edge much deeper in color.

A, B, C, D, E, F, and G are found in various parts of the perianth. H, I, J, K, L, M, and N are throat markings

artificial light. Matthew Crawford writes: "The color should be choice, high-priced, more like carmine than vermillion. Colors may be tinted, but should not appear bleached, washed out or faded." B. C. Auten emphasizes the importance of having the colors lively, rather than dull.



FIG. 19. LA LUNA

This is an excellent white variety attractively blotched on the lower segments with maroon. For straightness of spike, regularity of form, and clearness of the glistening white color, few varieties excel this one

F. C. Thomann's ideal is a color that does not fade when the flowers are cut. Most growers agree that clear, decided colors are the best, and the nearer the concolor type the better; G. B. Babcock and G. D. Black say that the blotch is very often objectionable. Florists demand a light-colored bloom, usually because it can be used for a greater variety of purposes; but there seems to be a difference of opinion as to this. E. T. Flanagan says that the darker colors are in demand only when the lighter ones are scarce. J. F. Munsell uses more than one-half red varieties, and H. A. Richardson finds only from fifteen to twenty per cent as great a demand for the darker colors as for the light. Several growers agree that

the darker colors are especially valuable for decorations when quantities of color are needed. Mrs. K. Atkinson, secretary of the National Gladiolus Society of England, writes that scarlet is one of the best selling varieties in England. Dombrain (1873) states that when colors are not clear they should be without splashing, and E. T. Flanagan adds that the variegated blooms are not to be so widely admired. M. Crawford sums

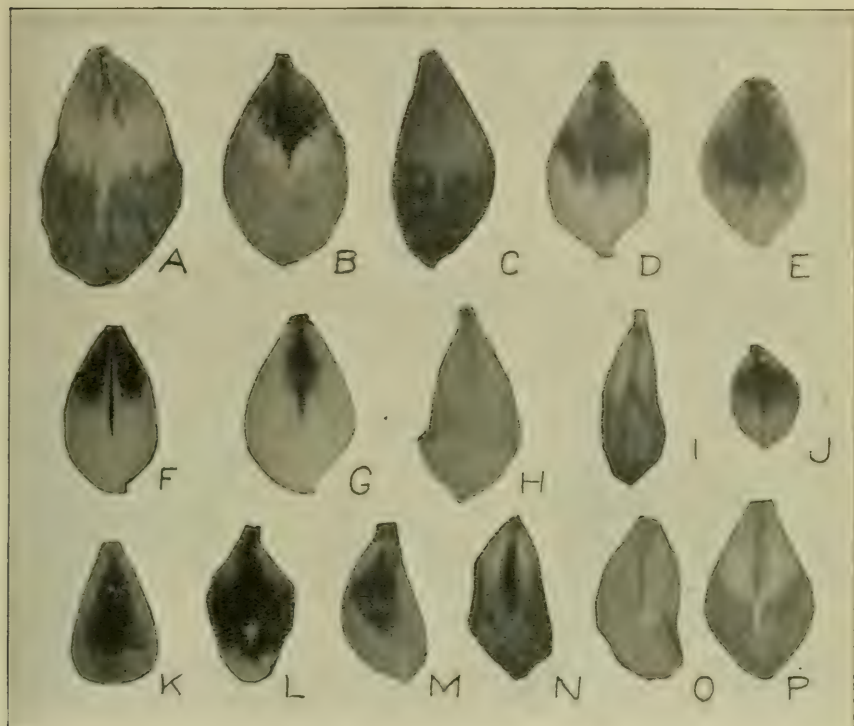


FIG. 20. DIVERSE MARKINGS OF VARIETIES

- | | | |
|------------------------|------------------|----------------------|
| A. Estella | G. Minnesota | L. Papillon |
| B. Herold | H. Tavistock | M. Sultane |
| C. Paul Böhme | I. Hazel Harvey | N. Nezinscott |
| D. Winsome | J. Sanguine | O. Halley |
| E. Wilhelm Steinhausen | K. Marie Lemoine | P. Hofgärtener Stapf |
| F. Stewart No. 573 | | |

These segments are reduced to approximately one-half natural size

up the color question by saying that fine coloring is the one requirement, without which all other perfections go for naught.

In considering the value of colors for landscape use, B. F. White considers all colors admissible so long as they are bright and brilliant. Burbank prefers the solid colors. Mrs. A. H. Austin and Mrs. K. Atkinson, and Messrs. Van Fleet, Macomber, Burbank, Bassett, Black, Spencer,

Brown, Hoeg, Tracy, Wilmore, Richardson, and Moore, agree that bright, brilliant, and distinct colors are demanded for a landscape variety.

As to size, most growers prefer a medium large bloom — one large enough to show the color well. Perhaps the bloom of the variety *America* is large enough. However, the craving for monstrous flowers is manifested among the gladiolus enthusiasts. Large blooms are especially admirable when associated with long spikes and extreme vigor in growth.

The general opinion is that the blooms should be as wide open as possible. However, W. C. Bull, of Ramsgate, England, prefers a bloom not too open, though the tips of the petals may recurve somewhat.

The substance of a bloom should be tough, thick, and leathery, not brittle, but firm and not easily damaged. For landscape purposes the blooms need to be "atmospheric in outline," as H. A. Richardson expresses it. Keeping quality is associated with substance, and is of prime importance in the consideration of either landscape or commercial cut-flower varieties.

The spike should be long enough to allow cutting of the bloom ten inches below the lower flowers. C. W. Brown says, "The stem should be only strong or stiff enough to hold up all buds till they open." A stem that is rather thin and wiry, rather than thick and stiff, is to be preferred; but it must be strong. One of the greatest advances to be made is in just such an ideal stem. C. Betscher and M. Crawford emphasize the fact that the stem must be large enough to take up sufficient water. This defect is present in some *Lemoinei* varieties.

The question as to the number of blooms that should be open at one time is a perplexing one. A great mass of bloom out at once may be desired, or one may prefer to have a few flowers only, so that the spike may bloom for a longer period. Van Fleet says "three or four"; Fuld, "as many as possible"; N. L. Crawford, "two each day"; Gage, "several, and if large, three or four"; Moore and Huntington, and Mrs. Atkinson, "many." In the landscape varieties, Fuld, Burbank, and Moore consider that it is better to have a large number open at once; and Moore adds that the blossoms should remain open for some time before they wilt. N. L. Crawford considers that from six to eight should be the right number.

The old *Gladiolus oppositiflorus* (fig. 17) type of inflorescence has now passed out, and it is desired that the blooms shall face in one direction only. W. W. Wilmore, jr., and Mrs. Atkinson, consider that the flowers should be closely set on the spike, while many others prefer the looser arrangement.

A subject of further controversy is the matter of branches and their value to either a commercial or a landscape variety. Hoeg, Babcock, Betscher, White, Thomann, Wilmore, Bonvallet, and Hutchinson consider



PHOTOGRAPH LENT BY MRS. B. H. TRACY

FIG. 21. NIAGARA

This is one of the finest creamy white varieties, for it is beautiful in all stages of bud and bloom. The lower segments of the flower are faintly penciled with lavender. This variety makes a very strong growth

branches of value in the garden varieties in that they indicate stronger growers. Burbank remarks that they improve the appearance of "the dwarf, sturdy varieties"; Auten believes them of value because they heighten the effect "when they bloom at the same time as the main," and Betscher because they may "extend the season." Bonvallet values branches chiefly because they relieve the stiffness of the plant. Brown, Spencer, Bassett, N. L. Crawford, Stewart, Flanagan, Van Fleet, M. Crawford, Zeestraten, Moore, Bull, Tait, and Mrs. Atkinson are of much the same opinion — that branches are of a decided advantage for cut-flower use. Branches may, however, be considered of value to the florist who uses the individual flowers in design work. On the other side, there is a group of growers who believe that branches are objectionable; some

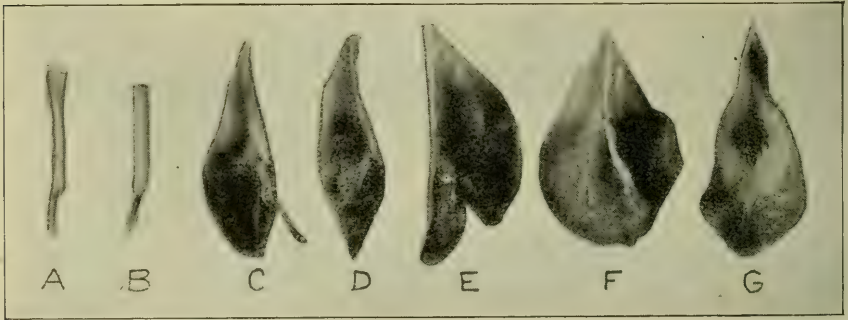


FIG. 22. TRANSFORMATION OF A STAMEN INTO AN EXTRA PERIANTH SEGMENT, OR PETAL

A is a normal stamen, which in B shows a tendency of the filament to widen. C, D, E, F show successive stages of the transformation of the filament, in each step of which the anther area is plainly visible. G is a stamen fully converted into a perianth segment in which the blotch represents the anther area. These forms were found on one spike of a seedling

of these believe that the branches reduce the vigor of the main, and others hold that branched spikes are difficult to pack properly.

Fuld notes that commercial varieties should be those that may be cut when only one blossom is open, with the ability to open the others in the dark. A requisite of a commercial variety is also that it may be packed without bruising and shipped easily without injury.

The qualities of a good variety adapted to landscape planting are as follows: First of all, the color should be bright, striking, and distinct; the markings, if any, should be decided. The spike should be straight, stiff, upright, and stronger than in commercial varieties. Branches are rather advantageous. There should be tall, medium, and dwarf varieties, so that few varieties would be objectionable for this reason. The blooms should be larger than in the commercial varieties, provided the plants have the power of producing flowers of uniform size all the way up the

stem; they should be of good form, well open; the growth should be erect and remain so; and the plant should be compact in habit, due to heavy foliage. Varieties adapted to landscape planting should further be of such constitution that they stand the sun without fading.

There is a great difference of opinion in regard to the value of curved spikes. Fuld, Macomber, Van Fleet, Betscher, Richardson, Fischer, Zeestraten, Tait, Wilmore, Brown, Spencer, Stewart, Auten, and Burbank commend them, believing them to be more graceful and artistic than the



FIG. 23. DOUBLE FLOWER OF KLONDYKE

This flower has six stamens, two pistils, and twelve perianth segments

straight. Tait limits their value to the varieties bearing small flowers. Auten thinks them valuable for funeral sprays. Many growers consider them good for vases. It is the common complaint, however, that the florists do not want them.

Would doubling be an improvement, was the question asked of two hundred gladiolus enthusiasts. The answers were varied. Bull thinks the idea "too horrible to contemplate." Richardson writes thus: "Simplicity rather than complexity is one of the most desirable characteristics to be sought for. The simple spacing arrangement and abandon

of the single flowers on the spike of such varieties as Peace and Rosella, add greatly to their artistic value." Hutchinson, Zeestraten, Tracy, Krelage, Tait, Barnes, Fischer, Van Fleet, Betscher, M. Crawford, Wilmore, White, Hoeg, Babcock, Black, Macomber, Gage, Huntington, Munsell, Fuld, Flanagan, and Mrs. Austin believe that doubling would not be an improvement. Bonvallet argues that doubling would make the flowers more durable. Spencer says: "Any new feature would add greatly to the popularity of the flower, as did the cactus dahlia." Thomann thinks a semi-double variety might be an improvement. Auten believes that it depends on what form the flower takes in doubling.

The following card has been devised for use in describing varieties of gladioli on the trial grounds of the American Gladiolus Society at the Cornell University Agricultural Experiment Station:³

CORNELL VARIETY TEST OF GLADIOLI

No.

NAME OLD Nos.

SYNONYMS

ORIGINATOR DATE INTRO. DONATED BY

SPECIES OBSERVER DATE

BLOOM — Size — Very large-large-medium-small.

COLOR marking }

SEGMENTS — Equal-unequal; connivent-separate.

UPPER — Horizontal-hooded-reflexed; broad-narrow. LOWER — straight-reflex; broad-narrow.

STAMENS — Color of filament; of style;

TUBE — Straight-curved; slender-stout; long-short; compact-loose.

SPIKE — Tall-medium-short; erect-curved-drooping; free-fair-bloomer-no bloom. No. blooms
Branched?

REMARKS ON BLOOM — Compact, loose; keeping quality; substance

HABIT OF PLANT — Erect-drooping; tall-medium-dwarf. Height of plant
Spreading-compact.

GROWTH — Good-medium-poor. SEASON — Early-mid-season-late.

PROLIFICACY — No. CORMS — Many-few. SIZE — Large-small. No. CORMELS — Many-few. SIZE —
Large-small.

FOLIAGE — Well-furnished-medium-poor; broad-medium-narrow; veins prominent-obscure.

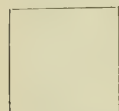
COMMERCIAL VALUE — CUT FLOWER — Extra good-good-medium-poor.

LANDSCAPE — Extra good-good-medium-poor.

VALUE AS A WHOLE — Extra good-good-medium-poor.

REMARKS:

ESTIMATION



No. corms sent No. that grew No. bloomed

³ The introductory paragraphs of Cornell Extension Bulletin 11, *Gladiolus Studies — III. Varieties of the Garden Gladiolus*, explain the methods used in describing varieties.

It will be interesting to note the score card devised by the Gladiolus Society of Ohio.

SCORE CARD, OHIO GLADIOLUS SOCIETY

The ideal, or perfect Gladiolus combining all the qualities here enumerated, should score 100 points. Approximation to the ideal standard, which is all that can be looked for at this time, should be designated by the award of points ranging from 0 to the full total in each case, according to the excellences of the specimen under consideration.

1. SPIKE — 20 Points.	
Long, 5; Straight, 5; Many blooms, 5; Facing together, 5.....	20
2. FLOWER — 25 Points.	
Large, 5; Widely opened, 5; Broad, round petals, 5; Substance and texture, 5; Beauty of bud, 5.....	25
3. COLOR — 20 Points.	
Attractive, 10; Either clear self, or strikingly marked, 5; Adapted to cut flower trade or florists' use, 5.....	20
4. FOLIAGE — 15 Points.	
Dark, healthy green, 5; Broad, 5; Abundant, 5.....	15
5. DURABILITY — 10 Points.	
Continuance of bloom on spike, 5; Lasting qualities as cut flower, 5.....	10
6. GENERAL EFFECT — 10 Points.	
In mass, bed or field, 5; In vase or cut display, 5.....	10
	<hr/>
	100
	<hr/>

At the annual meeting of the American Gladiolus Society at Baltimore in 1911, a scale of points was adopted to be used in conferring an Award of Merit. Mrs. Frank Pendleton is the only variety that has been examined according to this standard and has received the Award of Merit.

AMERICAN GLADIOLUS SOCIETY SCALE OF POINTS FOR CONFERRING AWARD OF MERIT

Resistance to disease.....	5
Texture of bloom.....	10
Duration of bloom.....	10
Size of bloom.....	10
Color of bloom.....	15
Form of bloom.....	10
Form of spike.....	10
Stem, length and stiffness.....	10
Number of blooms on spike.....	15
Vigor (aside from disease resistance).....	5
	<hr/>
	100
	<hr/>

In the enumeration of ideals, adaptability to a great range of soil, disease resistance, blooming entirely around the stem, variegations of the leaves, fragrance, greater value for indoor culture, hardiness, keeping qualities, number of blooms on the spike, and color of the stem, have been omitted. Certain of these ideals are at present fulfilled, others will be attained, and some are not worth seeking.

Groff (1907 a) said: "If the breeder uses his full opportunity, this ideal will be a progressive quality, and his standard will advance yearly as he sees the results attained by unlocking the treasuries of ages of the past in scientific, though unrecorded, practical plant-breeding."



FIG. 24. MRS. FRANK PENDLETON

One of the superb pink varieties. The lower segments are gorgeously blotched with French purple. The growth is strong, and the flowers abundant

material advantage; consequently he must take the risk of growing a stock of his new plant on the ground of his personal conviction that it will be profitable, and then, if he can, he must sell this stock of plants to the public at paying prices. How difficult is his task of making a large amount of money out of a single new plant hybrid becomes apparent when we consider how easily any one can obtain a few seeds or cuttings by dishonest methods, from these produce the identical plant, and in a few years have a stock of plants of the same kind for sale, and even claim to have himself originated it by crossing. Coupled with this difficulty, which seems to be inherent in the creation of plant hybrids, is a still greater one, that of adequately testing the new variety before putting it on the market. One can therefore see the reason, or at least one of the reasons, why even more has not been done to make new forms of plants which combine old characters or bring into expression new ones.

HYBRIDS AND HYBRIDIZATION GENERAL DISCUSSION

The first record of the crossing of plants was in 1719, when Thomas Fairchild, an English gardener, crossed a carnation (*Dianthus caryophyllus*) with sweet william (*Dianthus barbatus*). David Fairchild (1912) writes:

This seems a long time [referring to the two centuries since the first hybrid was made] if measured in the terms of mechanical invention, but when it is remembered that with most plants such a cross as that first one produced can be made only once a year, the accomplishments of plant hybridization appear truly remarkable. A mechanic makes a new machine and tests it at once; a plant breeder makes a new cross, but must wait for the following season, and if his plant is a tree or shrub he must wait for many seasons before he knows whether he has obtained from his cross something worthless or a new hybrid which is an improvement over that which the world already has.

The inventor makes his machine, patents it, or keeps some feature of its manufacture secret, and on the basis of his secret or his patent convinces capital that some kind of a monopoly can be maintained by which the exploitation of the invention can be made profitable. The plant breeder, on the other hand, can not patent his new variety, neither can he keep its origin secret to any

Perhaps few words have been so universally discussed as the term *hybrid*. Many definitions state that a hybrid is the result of the crossing of two species. Since Mendelism has gained prominence, a hybrid is defined as the offspring of crosses between individuals of a distinctly different nature. The word *cross* is now used interchangeably with the term *hybrid*.

A sport, or mutation, is a sudden departure from the type of the race, and is capable of breeding true to seed. It is to be remembered, in considering so complex a hybrid as the garden gladiolus, that all sorts of unusual forms appear from time to time, which are not mutations but are hybrid forms that would logically be expected from such crosses. New forms that arise from seed should not be considered sports; a careful study of the constitution of the parents will determine their character. It is possible that forms such as *Colvillei albus* can be considered mutations, but perhaps they are merely recessive forms in hybridization.

Stewart (1914) illustrates and describes a gladiolus sport from the variety Black Beauty which has the normal red flowers on one side of the spike and several white flowers, resembling La Luna, on the other



FIG. 25. MRS. MONTAGUE CHAMBERLAIN
This white bloom is most daintily penciled. The openness of the bloom adds to its attractiveness

the spike and several white flowers, resembling La Luna, on the other



FIG. 26. CHICAGO WHITE

This is one of A. E. Kunderd's varieties. It is exceptional in having a long spike of white blooms penciled with Tyrian rose. A good commercial variety and very attractive as a cut flower, being of good substance and attractive color, and having many blooms open at one time

side. This is known as a bud sport, and, being localized, would not be expected to be propagated (fig. 27).

Except for examples of this sort mutations would be very difficult to recognize, since in order to be propagated a sport must originate in the corms or the cormels, in which case it might easily be taken as being due to a mixture in the corms. The greatest care is necessary to keep varieties from getting mixed either by allowing a few corms or cormels to remain in the soil or by their becoming mixed in storage.

The fact that some white varieties become heavily feathered with pink is not attributed to sporting and should not be so considered. This condition is due to an environmental influence and is not permanent.

There are a few fundamentals that seem essential for intelligent breeding to-day. Breeding that is haphazard may produce results, but if properly directed thought is given, the work will be crowned with greater success. The practical breeder and the scientific man both deal with the same materials, but in vastly different ways. The practical breeder is concerned with the maintenance and improvement of his crop. The student of heredity is interested in how the characters

are transmitted. He often places the idea of improvement in the background, preferring to study the factors related to his problem; while the practical breeder is not concerned in the interpretation of the results, but centers his attention on the ultimate attainment of an ideal.⁴

Although men have bred plants for years, it was not until 1900 that a scientific explanation was offered for the behavior of plants in crosses.



FIG. 27. BUD SPORT OF BLACK BEAUTY

E. E. Stewart found among the stock of Black Beauty, a deep crimson variety, one spike which produced four or five blooms much resembling La Luna. This is a remarkable case of a bud sport. The blotch on the lower segments differs widely from the more or less intermixed throat markings of Black Beauty

⁴ These ideas are inspired from reading the introductory words from *Breeding and the Mendelian Discovery*, by Darbishire (1911).

In that year a very important paper by Gregor Mendel, the Abbot of Bränn, was discovered. Although the paper was published in 1865, the facts were not known nor appreciated during the intervening thirty-five years. Previous to the knowledge of this publication, generalizations only were made as to the result of crosses. Breeders noted that in many cases the offspring was rather intermediate in the first generation, and that later crossings gave some plants like the original parents but mostly of a very heterogeneous nature. Unlike his predecessors, Mendel did not consider plants as a whole, but studied individual characteristics. He illustrated by experiments with the garden pea that there are law and mathematical proportions in the results to be obtained. He first found that crosses between tall varieties and dwarf varieties gave tall forms, but that on propagating from these the tall forms broke up so that seventy-five per cent of the offspring were tall and twenty-five per cent were dwarf. Of the seventy-five per cent tall forms, one-third were pure; the remaining two-thirds were impure and apparently of the same constitution as their hybrid parents. The dwarf forms continued to breed true. Two facts were brought out in this experiment. The first is dominance, or the complete resemblance of the first generation to one parent, the characteristics of the other parent being entirely masked; the second is segregation, or the separating in the second generation into definite proportions of the characters concerned in the cross. Obviously all cases are not so simple.

As stated by the writer in a previous article (Hottes, 1915 a), the gladiolus offers an excellent example of a genus of plants that has been improved for garden purposes by the incorporation of a number of species into more complex multiple hybrids than in the case of most garden flowers. The china aster (*Callistephus hortensis*), the sweet pea (*Lathyrus odoratus*), the peony (*Paeonia albiflora*), and the Boston fern (*Nephrolepis exaltata* var. *bostoniensis*) have been improved solely by the selection of variations and mutations within a single species. Phlox, German iris, larkspur (*Delphinium*), dahlia, columbine (*Aquilegia*), begonia, and chrysanthemum varieties have arisen from the hybridization of several species. The rose, the orchid, the pelargonium, and the gladiolus, however, often have in the make-up of their best varieties from three to seven species, each contributing characteristics to the modern degree of perfection.

It is thus seen that every gladiolus variety dealt with is at the start a multiple hybrid. The variety Princeps is at least a fifth-generation hybrid in which are resident the characters from at least six species.

The wild species have in most cases come to be looked upon as "pure types," that is, plants that when self-fertilized will produce the parental characters identically. In hybridization these types are crossed, and, as before mentioned, the result is a new type bearing the characters of both parents, the characters of the weaker, or recessive, being at first masked by the predominating influence of the stronger. It is this type that is often preferred, and when it is self-fertilized the result is a mixture of seedlings, of which some are identical with one of the two parents and others possess the parental characters in combination. It is therefore advantageous that the gladiolus propagates vegetatively, for only in this way could a pure strain of the first-generation hybrid be preserved or any other subsequent forms be obtained.

Jackson (1889) published an account of hybrids made between *Gladiolus purpureo-auratus* and *G. gandavensis*, and it is truly remarkable to see how close his results are to true Mendelian proportions. It must be remembered that it is very doubtful whether Jackson had ever seen Mendel's paper, which was not widely known until 1900. To appreciate his results the parents may best be briefly described.

In *G. purpureo-auratus* the flower is deep, bell-shaped, and tubular. The two lower petals are marked with broad, elongate blotches of maroon-crimson. At the base of the blotch near the center of the flower, the color heightens to a deep, rich crimson over a very small area. This rich coloring is an important factor in the result obtained in the colors of hybrids, in which the whole blotch is commonly a rich crimson. On the margin of the blotches is a lip-like splash of golden yellow. The color of the remainder of the flower is pale yellowish green. The plant has foliage narrower than that of the *gandavensis* varieties. The spikes are graceful and subarcuate, or bow-like. The flowers are rather far apart, all facing one way; and in view of the arcuation of the flower stalks, and the pendant bell-shape of the flowers, their interior is not easily seen.

Van Houtte, in his catalog for 1841, the year of its introduction, describes *G. gandavensis* as follows: "Its dimensions surpass *ramosus*; its majestic flowers, to the number of eighteen or twenty, are of a most charming vermilion, their inferior petals adorned with chrome, amaranth, and brown, are relieved by anthers of an azure blue which descend to the center of the flower."⁵ The lower petals are usually penciled by lines of amethyst or maroon, this being one of the most prominent characteristics of the variety.

⁵ Translation from the original French.

The results of Jackson's crosses are here noted, without the knowledge whether these hybrids are the results of selfed individuals. The results approximate a second-generation 1:2:1 ratio in the inheritance of markings.

Inheritance of markings

Theoretical
amount that
should have
obtained
(per cent)

Actual result

25	26 per cent marked on lower segments with <i>purpureo-auratus</i> blotch; in many cases not maroon-crimson but a rich crimson. (A color found at the base of the blotch in the parent species.)
50	53 per cent possessed a combination of the linear stripe of <i>gandavensis</i> and a blotch-like stripe of <i>purpureo-auratus</i> .
25	18 per cent had <i>gandavensis</i> penciling.

The occurrence of a white patch in the petalage seems to be the effect of an inheritance of the pattern. The yellow splash at the margin of the maroon blotch is often wanting, but usually inherited, showing that this yellow splash and maroon blotch are not inseparable, but are transmitted independently.

In the case of the other characters noted, which may be due to multiple factors, the results are not of the simple 1:2:1 ratio, but are of interest to note:

Inheritance of shape of bloom

80 per cent, form sub-open or flaring; an intermediate between the two parents. Some were as widely flaring as the magnolia. This proportion may be a little large since the shape is difficult to determine.
8 per cent were of the bell-shaped bloom of the *purpureo-auratus*.

Inheritance of foliage and habit of plant

90 per cent of cases intermediate.
10 per cent, tendency toward the greater size and increased rigidity of foliage; a character of the *gandavensis*.

Inheritance of stoloniferous habit

Generally inherited. Contributed by *purpureo-auratus*.

Inheritance of aestivation

This character concerns the arrangement of segments of perianth which are, in most species, disposed so that there are two inner lower petals; but often there is but one.

Most of the flowers show the two-lipped type of aestivation; at least 75 per cent should have done so, for the species *purpureo-auratus* is characteristically so and the species *psittacinus*, a parent of *gandavensis*, possesses both forms. The one-lipped aestivation occurred only as scattering individuals upon a spike.

Fischer (1914) writes:

I see no reason why we should not benefit by the use of the Mendelian method in the practical side of gladiolus breeding; that is in the creation of new types by the recombination of pre-existing characters. To begin, one must have an ideal form or

variety in mind, and then choose parents having characters, that being combined, should tend to produce this ideal result. These parents are then crossed. . . .

The cross-bred seeds thus produced are sown. . . .

. . . . These hybrids must be self-fertilized, and it is important to lay stress on the necessity of sowing a large amount of seed from which your family of the second generation is to be grown. There must be enough to give a chance for the combination of your desired qualities, and the possibility of other rarer combinations to appear in order to obtain novelties.

Fischer has noted dominance and the recombination of preexisting characters. For example, "in crossing a large red flower with a small white one, the offspring all came in different shades of red in the first generation, and all were large sized flowers; in the second generation the majority again came red, but a few came light colored and white with large sized flowers."

Growers have noted that the colors in certain varieties change, due to an external influence of various heat, moisture, or soil conditions. It is known that when the hydrangea flower is given a treatment of iron it becomes a clear blue; and the red flower of *Primula sinensis* var. *rubra*, when grown in a temperature of from 15° to 20° C., yields white flowers, while it will again produce its red flowers under normal conditions. Obviously, the variety *alba*, which has white flowers, produces them at any temperature. When a transplanted variety is again grown in its original locality, the old characters should return. Growers who have contended that there are various types of certain varieties due to the locality in which they are grown, can easily determine whether or not these varieties are identical by growing all of them on trial grounds for several years and observing whether they resume their normal or identical appearance. If not, the varieties are different.

It must not be forgotten that, as J. A. S. Watson (1912) suggests, for the breeder of plants the environment is of first-rate importance, for it often sets a very definite limit to what he can accomplish. Our better varieties of apples and carnations can reach their full perfection only under closely regulated conditions; and improvement is frequently made possible only when we find means of improving the environment. Nurture, in the wide sense, must remain a matter of extreme importance for the race, even if, as seems likely, its effects pass away with individual life.

Weismann, the great German biologist, has given the basis for this belief in the non-inheritance of acquired characters, in pointing out the fact that germ and body plasm are quite separate, the germ plasm depending on the body plasm only for its nurture. The body plasm responds quickly to external changes, but this tissue is but temporary and lives for one generation only, while the germ plasm is carried over from one generation to the next. Characters to be inherited must be impressed upon the germ plasm. At present no way is known by which the body cells can influence the germ cells other than by transfer of food.

Modern observation, through experimentation, has established the fact that hybridity does not necessarily mean weakness. On the contrary, in many cases hybrids have attained greater vigor than their parents. The modern gladiolus, with its great size of bloom and vigor, is superior to any species as yet employed in hybridization. Very probably this progress in vigor is due to hybridity and continued selection rather than to the inheritance of any acquired character resulting from modified culture or ecology. Plant breeders in the main have rejected the theory of Lamarck that races are developed by the accumulation of the effects of use and disuse, because experimental data are lacking to substantiate the contention. Colors do change, often due to a changed environment; but, as Goodrich (1912) explains, each variety will reproduce its like in its own locality; but seeds of an alpine plant (he has been speaking of a divided dandelion plant, one-half planted in alpine altitudes, the other half upon the lowlands — each has developed new characters) will produce only the lowland form if sown there, and vice versa; the seeds of the lowland form will grow into the alpine form in the mountains. This change is accomplished by the new growing tissues, for the old and already-formed tissues are no longer capable of altering. Once fully differentiated, they are fixed. So we see the organism is moulded by its environment. It is not the developed result which is transmitted; it is not the modification which is inherited, but the capacity for modification in certain directions — the modifiability.

Besides white, which is due to the absence of color pigments, there are three classes of colors in flowers — the plastid, the cell-sap, and the combination colors. Plastid colors are resident in chromoplasts, the colors of which vary from yellow to red (Bailey and Gilbert, 1915) according to the predominance of yellow xanthophyll or orange-red carotin.

Cell-sap colors are often due to a chemical substance known as anthocyanin, which is (Bailey and Gilbert, 1915)

blue in an alkaline and red in acid reacting cell-sap, and, under certain conditions, also dark red, violet, dark blue, and even blackish blue. . . . The different colors of flowers are due to the varying color of the cell-sap, to the different distribution of the cells containing the colored cell-sap, and also to the combinations of dissolved coloring matter with the yellow, orange, and red chromoplasts and the green chloroplasts. There is occasionally found in the cell-sap a yellow coloring matter known as xanthin; it is nearly related to xanthophyll, but soluble in water.

Xanthophyll is the yellow pigment in chloroplasts. To summarize the nature of these colors, Bailey and Gilbert (1915) write:

Yellow, cream, and related colors are due to a yellow pigment either associated with green in the chloroplasts or found alone in the chromoplasts, generally the latter. Yellow may sometimes come from the cell-sap.

Red color may, under certain circumstances, be due to the presence of that pigment in the chromoplasts, but it is ordinarily a cell-sap color.

Most of the remaining colors, purple, blue, generally red, pink, etc., are due to pigments in the cell-sap.

The colors in the third class are the result of both cell-sap and plastid colors. They are termed *combination colors*. Judging by cases of *Gladiolus primulinus* hybrids noted, this species seems capable of altering the colors in such a way that the bright reds are subdued to salmon, apricot, é cru, and cream yellow, no doubt traceable to a dilution of the cell-sap reds by the yellow plastid colors from *G. primulinus*. The resulting colors are combination colors.

Reciprocal crosses are crosses in which both the male and the female functions are served by each plant; in other words, crosses in which each parent is used alternately as a seed bearer and as a pollen producer. Naudin (1866), in describing crosses between *Datura ferox* and *D. laevis*, says that the two groups of offspring of this reciprocal cross were so identically like each other that the two sets might easily be regarded as one. In other words, either species could be alternated as pollen or as seed parent without an appreciable difference in result. Darwin (1888) writes: "Hybrids raised from reciprocal crosses. . . . rarely differ in external characters." Colonel Trevor Clark found no difference in reciprocal crosses between *Begonia Dregei* and *B. heracleifolia*, or *B. cinnabarina* and *B. Pearcei*.

With gladiolus the results seem to differ from the above-mentioned cases, perhaps due to the extreme hybridity. Lemoine obtained *Gladiolus nanceianus* by crossing *G. Saundersii* and *G. Lemoinei*, *G. Saundersii* being the seed parent. The reverse cross gives many fine flowers, but none so rich in color nor so characteristic in shape. *G. Colvillei* is the result of crossing *G. cardinalis* on *G. tristis concolor*, and the reciprocal cross is not mentioned as being identical. In R. T. Jackson's hybrids between *G. gandavensis* and *G. purpureo-auratus*, the latter was used as the male parent; the reverse order gave little success, but no notes were kept. It is generally considered that *G. gandavensis* is a good seed parent, as results were better when it was so used with *G. purpureo-auratus*, *G. dracocephalus* (figs. 28 and 29), and *G. Saundersii*. Perhaps in all these cases the species were not pure types, but hybrids; in which event seedlings of the generation first observed would vary among themselves as much as they would in reciprocal crosses. When one parent is stronger or more vigorous than the other, obviously the stronger one should be used as the female because of a supposed superiority for seed production. In many cases a morphological characteristic causes an incompatibility between the parents. The style of the pistil may be so long that the pollen tube of another species cannot fertilize the ovules.

In A. E. Kunderd's mind the ideal was a strain of gladioli which should have ruffled segments. For more than twenty-five years varieties showing a tendency toward ruffling have been in existence, such as White Lady



PHOTOGRAPH LENT BY ERNEST BRAUNTON

FIG. 28. GLADIOLUS DRACOCEPHALUS HYBRID

A. *Gladiolus dracocephalus*, a wild species characterized by having a dull yellowish green bloom finely marked throughout the perianth wth brownish red.

B. A scarlet seedling designated as No. 1 Scarlet by Ernest Branton.

C. The hybrid between *G. dracocephalus* and No. 1 Scarlet. It is intermediate in color, the perianth bearing the characteristic *G. dracocephalus* markings and the larger flaring form of the pollen parent, No. 1 Scarlet

and especially Safrano. Kunderd has for a number of years selected such varieties, and has bred them together until he has a type that is rather distinct from any of the others, not only in the matter of ruffling but also in shape of bloom (fig. 30).

There are several ways of explaining the origin of these varieties. There is a possibility that they are progressive mutations; in other words, that a tendency toward waving arose by a sport and continued to intensify. Another explanation is to consider ruffling as due to several factors variously combined to cause a gradual progression in the degree of variation.

CROSSING TECHNIQUE

The normal, complete flower of the gladiolus consists of a showy six-parted perianth, of no practical value in the production of seed. Attached to the perianth are three stamens, with rather fleshy filaments, and anthers which in many cases are rather large; the varieties differ widely in this character. Most varieties are abundant pollen bearers, but the variety Rochester White, because of its complete albinism, produces no pollen. The pollen is of various colors ranging from white to almost blue. From the center of the flower rises the long pistil, bearing aloft the three-forked stigma. When the stigma is mature, which is a little time after the stamens begin to shed pollen, the surface becomes rather feathery and



FIG. 29. AMERICA \times GLADIOLUS DRACOCEPHALUS
The hybrid is indian red penciled and flecked with yellow and bronze. This is one of Ernest Braunton's hybrids

is then receptive to pollen. The flowers are usually protandrous, which means that the stamens and pistil mature at slightly different times. It is interesting to note that in *Gladiolus segetum* the pistil curls down to receive the pollen, the stamens and pistils being ripe simultaneously.



FIG. 30. AZALEA, A RUFFLED VARIETY

Fischer uses a special hood consisting of a wire frame covered with cloth, the wire projecting at the bottom and the hood closed by a piece of tape fastened to the cloth. Much experimental evidence is presented to show that cloth bags do not absolutely keep out foreign pollen, so that for scientific results a waxed paper bag should be used,

The first operation in crossing is to protect the pistil from foreign pollen or pollen not wanted as a parent of the cross. This is done by taking out the stamens or removing the whole corolla to which the stamens are attached. This process is known as emasculation. Unless the stamens are removed when they are undeveloped, which is before the bloom opens, the purpose of this operation will be defeated. W. C. Bull and L. M. Gage consider emasculation unnecessary, but the fact remains that pollen often retains its fertility until the pistil is ripe. In many cases the top of the spike is removed in order to concentrate the energy of the plant on the flowers remaining.

At the time the spike is removed, the emasculated flower is usually bagged, in order to keep out bees. The method of bagging differs greatly. E. N.

which will admit the sunlight and will also protect against contamination by other pollen.

The various methods of pollination are best tabulated for comparison. The significant points to be borne in mind are: (1) that the pollen is shed almost as soon as the flower opens, which is as soon as the sun is up; (2) that perhaps self-fertilization takes place much more readily than one thinks, since it is a rather easy matter for the pollen to reach the pistil either by the action of insects or by the wind. This makes emasculation in the case of the gladiolus more necessary than for some other flowers.

The workers in the Bureau of Plant Industry at Washington, D. C., according to Dr. C. E. Leighty, carry the pollen in a small vial, which is secured to the thumb of the left hand by means of a rubber band, thus allowing full play to the fingers. In the right hand the worker carries either a pair of forceps with which to remove the stamens from the vial, or a small brush to be dipped in the pollen.

Douglas (1885) dusts the seed-bearing parents about four times. "It is easy to do this," he writes, "because at the time of setting the blossoms we go over the flowers twice a day. In the morning between nine and ten, and in



FIG. 31. CROSSING TECHNIQUE

By reference to figure 14 one may see that the stamens are attached to the perianth tube. Therefore, if the perianth is removed, the stamens are removed. This is a simple method of emasculation

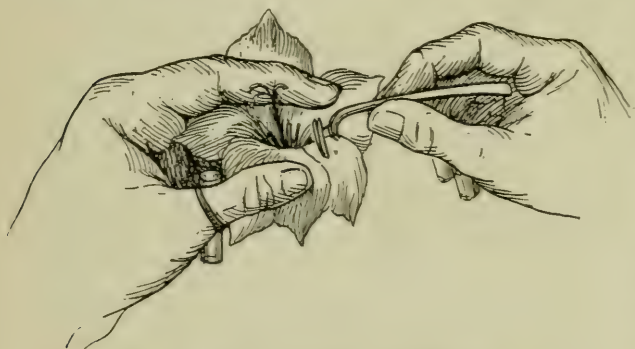


FIG. 32. CROSSING TECHNIQUE

A small vial is secured to the thumb of the left hand by means of a rubber band; the fingers are thus left free to hold the flower. With the right hand the stamens are easily removed by the use of forceps, and dropped into the vial

It is always desirable to carefully label the crosses. This is best done

the afternoon between two and three."

After pollination the bags should again be placed over the blooms, in order that foreign and undesired pollen may not come into contact with the stigma and be more congenial to the pistil than the pollen applied previously.

Name of grower	When emasculation is performed	When pollen is applied	Method of pollination
Austin.....	Morning or late afternoon.....	When pistil seems ready.....	With anther
Barber.....	Does not emasculate.....	Midday.....	With entire stamen. Piece of flannel placed in flower so that pistil is held against upper petal where bees will not touch
Barnes.....	Morning before pollen is shed.....	10 a. m., and throughout day.....	With camel's-hair brush, and finger tip
Betscher.....	Morning.....	4-30 p. m.....	With small penknife. Anther used.
Bonvallet.....	When flowers open.....	When pistil is fully developed.....	Less danger of getting foreign pollen
Burbank.....	Morning before bees fly.....	Forenoon.....	With anther
Fuld.....	Early morning.....	9 a. m.....	With brush
Gage.....	Does not emasculate.....	9-30 a. m. to 2 p. m.....	With any instrument
Hoeg.....	7 a. m.....	Morning or noon.....	With anther and finger nail
Hutchinson.....	Early forenoon.....	Afternoon.....	With brush
Richardson.....	Morning, two or three days before pollinating; opens the bud.....	Mid-forenoon.....	With stamens
Tait.....	Morning.....	Noon.....	With entire stamen
Thomann.....	Early morning when flowers are only partly open.....	9 to 10 a. m., if bright.....	With teaspoon. Pistil dipped in pollen.
Tracy.....	Early morning.....	Early morning.....	Brush also good
Van Fleet.....	5 to 8 a. m.....	10 a. m. to 12 m.....	With piece of wood
Weathers.....	Early stages of flower.....	An hour or two before midday.....	With brush
B. F. White.....	When flowers are open.....	Whenever pollen can be obtained.....	Anthers applied to receptive stigmas by means of forceps
Wilmore.....	Before flowers are fully open.....	Noon hour.....	With stamen
Zeestraten.....	No special time.....	Just as flower opens.....	With camel's-hair brush $\frac{1}{4}$ inch in diameter
			With stamen

by using small watch tags and placing on them the time of emasculation as well as the date of pollination, together with the name of the pollen parent. Perhaps a number which refers to a record book will be sufficient and more satisfactory than writing the full name of the parent.

There is a difference of opinion as to the number of seed capsules to be allowed per spike, some growers holding that as many should be allowed to develop as will, others that the strength of the plant should be concentrated into a few seed capsules only. Seed production is thought to exhaust the corms, so that few capsules should be allowed to develop if they are not wanted.

POSSIBILITIES FOR IMPROVEMENT

USE OF WILD SPECIES

In the hybridization of the gladiolus only about a dozen species have as yet been incorporated into hybrids. For some years many hybridists have been working on the use of other species. Some think that great future progress is to be made by their use; others feel that the species thus far used include all that are of value. When one considers the value of the various species in producing new types and diverse blotchings and stripings, it is difficult to believe that there is no further possibility along this line.

The first species to be used extensively in hybridizing was *Gladiolus cardinalis*, which gave the excellent white throat lozenge to the *G. Colvillei* hybrids. The next species of great importance was *G. oppositiflorus*, a form contributing height, length of spike, arrangement of flowers, and markings, to its hybrids *G. ramosus* and *G. gandavensis*, for this species attains a height of six feet and bears from twenty-four to forty blooms, which are arranged so as to face in two directions. It has taken years of breeding to eliminate this last character, which is rather objectionable. Most of the *gandavensis* varieties are also marked with the characteristic stripes or penciling from the *G. oppositiflorus*.

Another species concerned in the *gandavensis* strain is *G. psittacinus*, which has given its rich scarlet and chrome yellow to the hybrids, *G. oppositiflorus* being a white species. Some years previous to 1878, *G. purpureo-auratus* was used in crossing. This introduced, through the *Lemoinei* forms, the bell-shaped, hooded blooms facing in one direction, as well as the diamond-shaped, rich maroon blotch characteristic of the varieties at present so popular. *G. Saundersii* has had its influence on the *Childsii*, *nanceianus*, and *turicensis* varieties in making the blooms large and exceedingly well open. *G. cruentus* has contributed the charming white throat and fine dots found in the variety Princeps. *G. papilio* is usually credited with the production of the finest blue varieties. Recently there

has come to the attention of the breeder the Maid of the Mist gladiolus (*G. primulinus*), a pale yellow, primula-scented, hooded species which has toned down the deeper colors of the other varieties and impressed its hooded character on the majority of its seedlings.

The foregoing discussion covers only a few of the species used. In the practical hybridist's mind, each species represents certain desirable char-

acteristics to be incorporated into a hybrid. Too often there are many unfavorable features, the consideration of which should not be entirely neglected.

Dr. Van Fleet and Maurice Fuld are optimistic of the results in using new species in the future. H. A. Richardson writes that the "infusion of new blood at any time offers a promising field as a basis for further selection and improvement." S. E. Spencer feels that the wild species are valuable "to a limited extent to get vigor and hardiness and develop new types and colorings." W. W. Wilmore, jr., notes that "the wild species may be used to develop some lacking



FIG. 33. RUFFLED PRIMULINUS-SEEDLING FROM L. M. GAGE

The color of this variety more closely approximates orange than any other variety seen. It shows the characteristics of its parent *Gladiolus primulinus* in the hooded bloom and penciled throat, as well as in its color. It is beautifully frilled and ruffled

quality," otherwise a backward step is taken. W. C. Bull thinks it is very doubtful, so far as form and color are concerned, whether the gladiolus can be improved by the use of wild parentage, but "if constitution could be improved it would be worth any amount of time and trouble." B. F. White feels that at present the species are not promising, as all "the good ones have been tried. Should new ones be discovered, it would pay to try. The farther we get away from the species, the better the flowers

are." C. Betscher believes that "few species are needed, for quite as many points can be secured without them." Luther Burbank writes that "it is slow, uncertain work when using wild species."

Groff (1907 a) believes the only system to follow for the production of the highest types for commercial value, is that

of breeding from domestic specific types as sires on selected females. . . . The use of wild species with the hope of attaining a similar ratio of such results is relatively absurd, as the only value that any wild species can have to a breeder for practical results is as foundation or laboratory stock, to be discarded yearly with their early hybrids as he advances step by step towards his ideal.

* * * * *

. . . By using all obtainable species he multiplies the possibilities for practical results and increased diversity in the material to be evolved from the product of future years, and yearly discarding species and early hybrids as they are superseded in the course of his operations.

Wild species are only of value so far as they may supply some desirable quality for incorporation into a domestic type containing other good qualities, such as size, vigour, vitality, and adaptability. . . .

. . . Breeding from wild species is therefore of little practical value, as the farther our removal from their many objectionable features the better, when by proper selection their best qualities can be controlled and applied according to our knowledge and discretion.

* * * * *

How many animal-breeders would be satisfied with sires whose progeny were largely weeds? How were these high-class animal sires produced? How are new domestic races and strains of cattle, sheep, dogs, poultry, pigeons, and other animals and birds obtained? Certainly not by the general practice of plant-breeders.

Of what practical value is the knowledge of the component ratios of life forces in simple hybrids, in comparison with that knowledge giving results in the highest ratios of useful and valuable qualities? — thereby saving labour, time, space, and expense, and giving, in the place of curios, the highest possible percentage of quality in economic types.

. . . Select and develop domestic races and sections of such high quality, vitality, and general adaptability, that their progeny will not only be of higher quality than the parents, but that this quality will be produced in quantity in the highest possible ratio. This is practical plant-breeding.

Again, before the American Breeders' Association, Groff (1907 c) expresses his opinion "that no simple or limited crossing can produce the value, quality and satisfaction equal to those resulting from unlimited removals from the wild species on the lines of scientific selection, guided by learned human intelligence."

As has been stated by the writer in a previous paper (Hottes, 1915 a), it must be admitted that greater progress can often be made by interbreeding established varieties; but when new features are to be added, the employment of new species is advisable, or even imperative. These should be the basis of hybridization. As years pass, the inferior seedlings may be discarded, and the ideal form may be far removed from the wild species; but the ancestor is necessary.

THE MOST NEEDED IMPROVEMENT

In answer to the question, What is the improvement most needed, M. Crawford, Van Fleet, Spencer, Fischer, Richardson, and Bonvallet consider clear and self colors a great ideal for which to strive. Richardson, M. Crawford, Flanagan, Burbank, Black, Spencer, White, and Fischer consider it necessary to make an effort to greatly increase the substance of the bloom. Healthier plants should be the only ones retained; all those of inferior quality should be barred from distribution and destroyed. Slender, graceful spikes should be developed, write Mrs. Austin, Zeestraten, and Fischer. Wide-open flowers are preferred by Mrs. Austin and by Van Fleet and Richardson. Mrs. Austin, Koerner (1911), and Spencer welcome the introduction of new and unusual forms. Kunderd (1911) writes:

In addition to the reported foliage with white striping, great improvement may be expected with the normal color. For a number of years I have been selecting and breeding with this object in view, and find the gladiolus as susceptible along this line as in the improvement of its flowers. We should have tall, wide, rich green foliage; tall, slender and graceful foliage, of forms best suited to the usual straight-stemmed varieties, and some beautiful, slender and drooping foliage, best suited to blend with what are known as bent or crooked-stemmed varieties. That there is a future of usefulness for the last named form of stem, I feel confident, if the flower is specially attractive.

Another feature of promise is the colors of the stem. Some of the stems are almost white and others are fine cream or yellow. This, no doubt, will become a feature of usefulness in the gladiolus of the future.

. . . I am confident the long wished for sweet-scented varieties will be perfected in the hands of Lemoine, Burbank, or Van Fleet.

Fuld emphasizes the value of having an ideal toward which to work. N. L. Crawford wishes that growers would attain a higher ideal before putting their varieties on the market. Zeestraten would have a better shape in the gladiolus. Gage thinks the whole *Lemoinei* class needs improvement.

As to the type of bloom the hybridists are using as the parents to attain the high degree of perfection desired, Groff (1907 a) writes: "For practical and valuable economic results it is therefore not sufficient that the breeder should be able to produce types of symmetry and beauty, but he must add the qualities of stability and adaptability to changed conditions to ensure due satisfaction for the ultimate grower." Wilmore thinks the variety America is the best type of parent, as it produces seed freely, is vigorous, and is of a color that blends well. Thomann uses light colors only as parents. Mrs. Austin, Burbank, and Betscher use seedlings, mostly of their own origination, which combine the different types. Van Fleet believes "*G. primulinus* and the garden varieties to be most promising." Fuld is breeding for size, and therefore uses the larger-blooming varieties. Zeestraten uses the most vigorous growers and the best multipliers.

The following varieties are mentioned as having possibilities when used as parents:

America	Mastodon
Badenia	Mrs. Frank Pendleton
Baron Joseph Hulot	Mrs. G. W. Willock
Blanche	Niagara
Blue Jay	Panama
Canary Bird	Parure
Chicago White	Peace
Cordelia	Princepine
Dr. Dotter	Princeps
Elizabeth Kurz	Princess Louise
Europa	Prophetesse
Glory	Rochester White
Golden King	Schwaben
Halley	Sparta
Harvard	Sulphur King
Heliotrope	Victory
Isabel	White Excelsior
Lady Howard de Walden	White Lady
Liebesfeuer	

GATHERING AND PLANTING SEEDS

After the fertilization of the ovules the capsules soon begin to develop, and when they have attained their full size they ripen speedily. The pods crack from the top downward, and the seeds can be gathered as soon as this takes place. They should be dried in an airy room. The pods or the seeds may be placed in cloth sacks to which air can be admitted. It is necessary to remember always that seeds are young plants and for their proper germination should be stored in a cool, not too dry, place.

Opinions differ as to the proper time for sowing. Fuld prefers to sow the seeds in December in the greenhouse, and then have some young corms to set out in May, thereby saving a year in the production of new varieties.

Douglas (1885) writes as follows:

My plan is to prepare a hot-bed for them, and to sow about fifty seeds in a seven-inch pot, using good light compost. The seeds vegetate in two weeks, and the way to be successful is to keep the young plants growing on without any check. The plants grow very rapidly, but it is best not to disturb them. As they increase in size, gradually admit more air, until by the end of May the lights may be removed entirely; placing them over the frames only in very rough and frosty weather. By the end of September or not later than the middle of October, the young seedlings have completed their growth, and the pots will be full of bulbs varying in size from a marrow pea to a filbert. The pots may be laid on their sides until the leaves decay, when the next step will be to shake the bulbs out, wrap them up in paper, and store the packages in a dry place where frost cannot reach them.

Somewhat the same system is in vogue with Jackson (1889), who writes:

The hybridized seeds were planted in April, 1886, in shallow boxes, and so grown throughout the summer. About midsummer, when the leaves attained a considerable height, fine sifted cow-manure was spread over the soil in the boxes to the depth of half an inch or more. This proved beneficial as a mulch and source of liquid-manure at each watering. In autumn the bulbs were sifted out of the earth. . . . The second year the seedlings were planted thickly in rows in the open ground.

Gage (1913?) gives the following directions for the care of the seed bed; he recommends sowing out-of-doors about May 15, when the ground has become warm:

Many growers place their gladiolus seed bed under shade during the first year, but I think that this is wrong, for after testing both methods I am convinced that seedlings grown under shade do not produce as large or as strong corms as those grown under the open sunshine.

It is, of course, desirable to keep the seed bed covered with matting or other suitable material for two or three weeks after planting, to conserve the moisture and facilitate germination; but after the seeds have started to grow and roots are formed, the bed should have an abundance of air and sun; also plenty of water should be added if the bed is liable to suffer from drought.

I prefer to have the soil in my bed rather sterile, because the weaker seeds will not survive long in a poor soil and much of the struggle for existence—for the survival of the fittest—is ended in the seed bed and I am thus saved the labor and bother of growing weaklings; but after the plants are well started I begin to feed them, giving them an occasional top dressing of some good commercial fertilizer, and later I apply hard-wood ashes.

Hendrickson (1911) writes that seed

will have to be carried over until the following spring, when it can be planted in shallow drills, covering about one-eighth to one-fourth inch with soil, they will only make a slight grass like growth the first year, and must be taken up in the fall and housed away from frost; the following spring they can be planted as one would sow garden peas and covered about one and one-half inches deep; they will make a little more growth and perhaps a small percentage will flower, but the bulbs will have to be lifted and planted once more before a good showing of flowers can be expected.

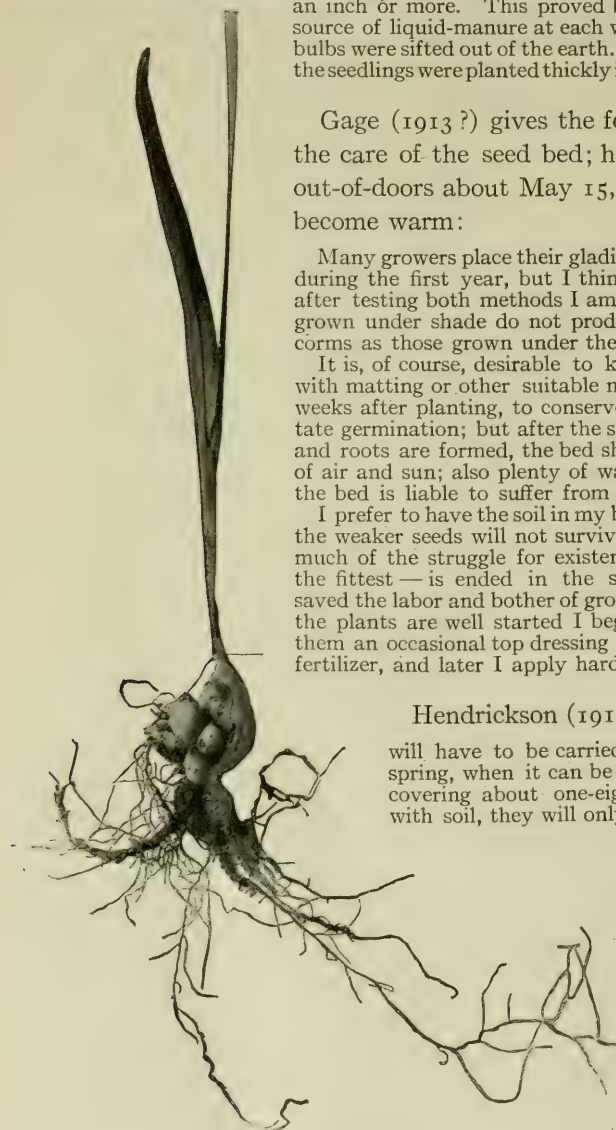


FIG. 34. GLADIOLUS-SEEDLING

Note the thick roots at the base and the large corms. This is shown after six months' growth from seed

Betscher (1914 a) gives the following excellent suggestions regarding seed beds:

Presuming that one has good soil to begin with the next step is the right handling of it. Where possible to do so, it is very good to have the plot planted to clover — alsike planted about July 15 or rye later on — and given a good mulching of manure, but not heavy enough to ruin it. This will feed the clover and leave the ground in extra fine shape. When severe freezing sets in about November 15, or later in an open winter, spade the plot about eight inches deep, turn so top soil and clover is at bottom, leaving rough so that freezing will penetrate deeply. About January when an open spell comes as soon as it gets colder and the top is frozen two or three inches deep, dig this plot up with mattock or pick about three to four inches deep so that it will freeze deeply, leave as rough as possible. We do this a number of times during the winter but not after severe freezing is at an end. . . . When a severe change to colder, about March 15 or later rake it level, and even if a bit wet the freezing will leave it very fine. This will bring out early weeds so that when the soil is ready to plant about April 15 or later it may be hoed and raked thoroughly. It will be in fine shape to plant any time after April 15 in central Ohio.

Granting that the soil is in very fine condition — perfectly level — we now begin to plant. Very often ground is not what it should be, and seedlings do not turn out well. For this reason we plant several rows of large bulbs alongside and if soil is wrong the large bulbs also will show it.

Our beds are about forty feet long. We take several eight inch boards to walk on. Then take a wide flat shovel and scoop out the soil about three-quarters to one inch deep. Make perfectly level with back of rake. Make beds from four inches to twenty-four inches wide. Plant seed quite thick so ground is covered; then scoop soil and cover seed carefully. We level carefully before moving boards ahead so rain does not form puddles on the beds. In this way we plant thirty-five to fifty pounds of seed.

These beds may be covered with old carpets, old sacks or burlaps, and left on until plants are two inches high. Mats or straw may be used.

Until seed is pretty well up it should be kept damp say for four or five weeks after planting. Water evenly and thoroughly.

Whenever the beds partially dry out we give them a thorough watering. *Never let the seedling bed get dry.*

We prefer watering very early in the morning, but in hot dry weather about sundown. When done thoroughly it may be done any time during the day.

Planted so thickly it soon requires feeding. We have a heap of well rotted manure to which has been added bone flour, wood ashes, soot and lime mixed one part to which we add two parts good soil — mix thoroughly — sieve through fine sieve and put evenly through the plants about June 20 and July 15. This must be done with care. We water as fast as we get several beds mulched so ammonia, etc., does not escape. Do not put on too thickly.

Go over the plants often. Do not let weeds get a start; once a week is best.

When planted April 15 to April 30, they will be ripe enough to dig August 15. Earliest types August 1 — latest types about August 30.

Do not sieve or rub much. We loosen the soil with a stiff trowel then pull the plants out, sieving the balance lightly, although it is better to pick out all that do not pull out.

Put in shallow boxes about two inches deep, then put in a dry cool shed or cellar. Do not leave where winds or drying occurs as often they harden easily, especially so when bruised in sieving. Rub roots off lightly when ready to plant.

* * * * *

Do not keep near fire heat as they deteriorate greatly.

Plant about April 10 to May 15 three inches deep below soil level. Draw the rake through them when coming up. Do this every week or after every rain until plants are about eight inches high. Keep soil loose about them until August. Many perish if ground becomes crusty.

Thomann sows his seeds in flat trays in early March and takes the trays out of doors when the weather permits. The plants should be disturbed as little as possible. Van Fleet uses six-inch pots, or if sowing

in May he prefers seed beds. N. L. Crawford scatters the seeds in three-foot rows, six inches wide, covering the soil deeply with leafy boughs until the sprouts appear. He protects the seedlings with a cheesecloth screen, placed about one foot above them, during the heat of the day. Burbank sows his seed both in beds and in boxes. Huntington keeps his seedlings under lath screens. Wilmore drills his seed in trenches, which are made ten inches deep to allow for irrigation and hoeing. Black covers his seed with a layer of sandy soil. M. Crawford believes straw to be the best material to use for covering in order to insure germination.

About 1906 Frederick Roemer, of Quedlinburg, Germany, originated what he called a new group, giving to it the name *Gladiolus praecox*. By some growers the varieties in this group are called *Annual gladioli*. This term should not be used, since annuals are plants that live for only one year, whereas the meaning in this case is that the plants are brought into bloom in one year from seed. The *praecox* strain is obtained by intercrossing the earliest plants of *G. gandavensis*, *G. Lemoinei*, *G. Childsii*, and *G. nanceianus*. The seeds (Anonymous reference, 1907 d, should be started in a temperate frame the first of March. They germinate in from three to four weeks. As growth advances and weather permits, ventilation should be given in order to get good, sturdy plants. A transplanting, although not essential if the seeds have been sown thinly, is of great benefit. Soon the seedlings are strong enough to stand feeding, and a mulch of bone dust or sheep manure should be applied. During the first year the corms attain the size of a crocus bulb; the second year they are as large as those usually offered in commerce. Two-years-old corms produce two or more spikes of normal size.

Burpee seems to have evolved a strain much like the *praecox*, which he calls *Fordhook hybrid gladioli*. Some of these seedlings seem to be very excellent both in color and in size. It is of great value to get such precocious varieties.

Kerr (1913) prefers to sow the seed where it can be left to bloom, as the seedlings do not transplant well. He states that great pains should be taken to give the bed a careful preparation before planting the seeds.

THE CORM

The underground stem of the gladiolus is not a bulb, but a corm. A corm is defined as a thickened base of a stem, usually subterranean, in which food is stored. It differs from a bulb in that the greater share of the bulk of a bulb is not stem, but bulb scales, which are really thickened bases of leaves, the stem being merely a much-flattened plate from which roots and bulb scales arise. Corms also are covered with tunics, or scales,

but these are scarious, and are called husks, or tunics, in the case of the gladiolus. These scales are bases of leaves, but are not thickened as they are in bulbs. Botanically considered, a bud or the potentiality for a bud exists in the axils of all leaves. There should be one bud for each layer of tunics, or husks. Because of the manner of growth of the gladiolus, which is in one plane, these buds should have an opposite arrangement, thus causing them to lie in one straight line through the center of the corm.

It takes from one to four years, according to the variety, for a seedling to produce a corm of blooming size. It takes one year less for a cormel to flower. *Gladiolus purpureo-auratus* has the character of blooming quickly from seed, and has transmitted this character to its offspring; it was therefore a great factor in the production of the *praecox* strain.

Every stem that makes vigorous growth has at its base a corm. Each corm has several buds, of which each one that grows will produce a new corm on top of the one planted. Seven bulbs of blooming size in one season are reported by Higgins (1912). In this way the grower's stock is not only reproduced each season, but also rapidly increased, provided good soil and proper cultivation are given.



FIG. 36. GLADIOLUS CORM FROM WHICH THE TUNIC HAS BEEN REMOVED

Note the scars due to the bases of the old leaves. The buds are in a straight line, and there is one bud for each ring on the corm



FIG. 35. GLADIOLUS CORM

The husks, or tunics, are really the bases of the last year's leaves

The vigor and the thickness of a corm depend much on the proper growth of foliage. If in cutting the spike little vegetative growth is left above the soil, only small quantities of food can be manufactured by these abbreviated leaves, and the base of the stem, or corm, in which the food is stored, suffers. The failure of amateurs to carry over stock is often due to cutting the shoots near the surface of the soil, the corms thus being able to make little or no development. The suggestion, then, is that if one wants an annual renewal of corms, care must be exercised to leave sufficient foliage after cutting the spike.

It is the general opinion that corms which have been allowed to bloom every year for three or four years become thinner and thinner. These



FIG. 37. FIVE CORMS FROM ONE

When the corms have produced flowers for a series of years, they become flatter. When corms of this kind are planted, they often produce five or six small-sized corms instead of one or two of blooming size

thinner corms do not produce long-blooming spikes. So that in order to maintain the quality of the bulbs and the correlated quality of the blooms, very old corms should not be allowed to bloom, or else new stock must be grown from cormels. The more nearly spherical corms, in other words the thicker ones, are the better. With age the flat corms frequently send up five or six shoots, causing the production of not one or two blooming-sized corms, but small ones that need a year's growth before they will bloom again. However, corms vary greatly in size, it being the characteristic of some varieties to produce small corms. It is usually blooming age, rather than blooming size, that is important. In choosing corms from mixtures, therefore, it is not wise to select only the large ones. Some of the blue hybrids produce small corms, and this color might be omitted if large corms only were purchased. The variety Baron Joseph Hulot never produces as large a corm as do some of the other varieties, and many varieties, for example Mrs. W. E. Fryer, produce flowers from very small corms.

Corms are graded officially by the American Gladiolus Society as follows:

Grade	Diameter
1st, or no. 1	1½ inches and up
2d, or no. 2	1¼ to 1½ inches
3d, or no. 3	1 to 1¼ inches
4th, or no. 4	¾ to 1 inch
5th, or no. 5	⅜ to ¾ inch

Graded in this manner, numbers 1, 2, and 3 are of blooming size. Number 4 often blooms, but is usually sold only to the wholesale trade. Number 5 is not

supposed to bloom, but often does. The smaller sizes are sorted with sieves of from $\frac{1}{2}$ -inch to $1\frac{1}{2}$ -inch mesh. The other sizes are sorted by hand.

Endicott (1886) mentions the division of individual corms as a method of more rapid multiplication. He writes: "One way of propagating varieties is by cutting the bulbs into pieces. If a bulb be stripped of its husks, there will usually be found two large buds at the top and smaller ones in a line down each side, every one of which may be made to grow and form a bulb."

Mr. Banks, of England, according to Dombrain (1873), divides the corms into several pieces in the case of scarce varieties. If the corm is left entire, it often happens that one of the shoots will not start because of a decay, which infection may spread through the whole corm, causing its entire loss.

Woodruff (1915b) takes the precaution to dust the cut surface with soot, although he is not persuaded that this is of real value.

It is a common opinion that gladioli change from one color to another after having grown for a few years, as already stated (page 225). This may be due to the rapid multiplication of some varieties and the more rapid deterioration of others. The slower propagation of certain ones merely increases their proportions. There is a greater tendency, it is thought, for the lighter-colored varieties to run out first; and the white ones are in all cases of rather weaker constitutions.

In the spring one often observes certain corms which have not been stored in the best conditions and which have turned brownish; though not diseased, they are considerably changed in color and dried. While actually the corms are not so good as normally colored ones, their change is due to a conversion of some of their starch into sugar. When planted they generally bloom well.

Regarding a correlation between color of corm and color of bloom, Cowee (1915a) says:

Although we are able, from years of experience in handling gladiolus bulbs, to sort out from mixtures many named varieties by reason of color of bulb and other characteristics, I believe it is quite impossible to determine with any degree of accuracy the shade of bloom bulbs of certain colors will produce. From our experience we find that red shades produce a larger proportion of yellow bulbs, light, medium and dark (about 50 per cent), about 25 per cent of red bulbs, and about 25 per cent divided equally between white, flesh and pink. Pink shades rarely produce red bulbs, the shades of yellow predominating about 50 per cent, the balance being divided between pink and white bulbs, the latter predominating. White shades produce about equal quantities of white and yellow bulbs, a smaller proportion of pink bulbs, and a smaller proportion of red bulbs. Yellow shades rarely produce other than yellow and pink bulbs. Blue shades rarely produce other than yellow or white bulbs.

You will note from the above, which is a careful record of investigations made that it would be quite impossible to determine the color of flower from the color of the bulb.

The writer's observations show further that some of the corms are intermediate in color between red and yellow, while many can truly be

called white. For example, Blue Jay, Golden King, and Viking, respectively blue-, yellow-, and French-purple-flowered varieties, have white corms; while White Excelsior, Frilled Pink, Scarsdale, Lemon Drop, and Independence, although they are white-, pink-, magenta-, yellow-, and carthamin-red-flowered respectively, all have yellow corms.

STORAGE OF CORMS⁶

Gladiolus corms should be stored in a cool, airy place, not too moist nor too dry. The temperature should range between 35° and 50° F. in the coldest weather. If the storage house is protected sufficiently by dead-air spaces in the walls, little artificial heat is required. Large corms may be placed in crates; the depth is of less importance than when storing the smaller corms or the cornels, which become somewhat packed together, causing a heating due to fermentation. The small corms should be stored in shallow flats not over 2 or 3 inches deep.

Commercial growers handling bulbs on a large scale construct special storage houses. B. H. Tracy has a building that is thought to be fireproof. It is 80 feet long and 60 feet wide, and is constructed of concrete and terra cotta blocks with a "slapdash" finish. Enough space is afforded in the second story for a showroom, offices, and bulb storage space. The first floor contains the wholesale flower room, garage, carpenter shop, and additional space for bulb storage.

J. L. Childs has constructed his storage house of hollow cement blocks covered with stucco. The temperature during the winter is maintained between 40° and 50° F., a temperature which not only keeps the bulbs in good condition but is not too cold for the men to work about the building. The bulbs are placed in flats 3 inches deep, 30 inches wide, and 4 feet long. Throughout the entire room used for storage, racks are constructed 8 feet high, each rack holding seven flats. The first flat is placed 18 inches above the floor.

Oberlin (1891) writes substantially as follows of his storage method and the trays he uses: The cellar joists are 9 inches wide and 20 inches apart. It is this space that is used for storage purposes. Roofing laths are nailed 20 inches apart at right angles to the joists. The laths for another row should be placed 4 inches from the first so as to leave room for shifting and moving the trays. The trays are of plastering lath also, unplanned, 1½ inches wide, 4 feet long. Nine and one-third laths are required for each tray. If the following measurements are used there will be no waste material, the remaining two-thirds being used to make the next tray. Two laths are taken for the sides and 31½ inches are sawed from these; the other two pieces left for ends should be 15¾ inches

⁶ The proper condition for the storage of cornels is considered under the discussion of cornels (page 250).

long. The end pieces are nailed, thin 1-inch nails being used. One lath makes three pieces for the bottom. From six laths eighteen pieces $15\frac{3}{4}$ inches long are sawed. These are nailed to the bottom with a space between them equal to the thickness of one lath. The tray is finished by nailing two pieces at the bottom lengthwise. It is then lined with paper, and is ready to receive the corms. In this cellar three trays may be placed one above another. The work should be done in the spare moments of the dull season. In such a place the bulbs are away from dampness, and are in a temperature a few degrees higher than on the floor, as the living-room above communicates the heat to a stratum of air beneath the floor.

Many of the smaller growers feel that storage in the home cellar is as effective as in a special bulb storage house. Any place adequate for the proper keeping of potatoes over winter will be admirable for the storage of gladiolus corms.

It is best not to store in too deep boxes or in bushel baskets, since under such conditions the corms easily ferment and become heated.

Kunderd (1915 a) recommends the use of sand to cover the corms when small lots of each kind are maintained. It serves to prevent them from shrinking and keeps them in a good, plump condition. This seems especially advisable when frost may possibly enter the storage place. Furthermore it is a protection against too much moisture under damp storage conditions. Henry Youell advocates mixing fine, dry soil with the corms, which is sifted out at planting. He remarks that, according to the condition of the soil, some growers recommend dampening the soil immediately before planting.

CORMELS

Soon after the base of the growing stem of the gladiolus has begun to thicken, small corms are found to have formed between the old and the new corm. These are properly called cormels. They are covered with a hard shell, thus differing from seedling gladioli of the same size, which have a covering more like a husk, composed of the dried bases of the previous season's leaves.

To keep up the standard of the stock and for rapid propagation, reproduction by cormels is essential. Cormels range from one-sixteenth to three-fourths inch in diameter, and will produce corms of blooming size in a year less time than will seeds. According to the variety, they flower in from one to four years. A single corm has been known to produce as many as two hundred cormels in a season.

Regarding the growing of cormels, Crawford (Crawford and Van Fleet, 1911) recommends having the soil as rich as possible at corm-planting

time. A bed four feet wide should be laid out and raked smooth. Drills should be made one inch deep and far enough apart to allow for hoeing (six inches). The bulblets should be placed one inch apart, and covered at once with sifted sand about two inches deep, then pressed down to the level of the surface. Sand is preferred to most kinds of soil, because it never bakes and also because it shows where the rows are so that hoeing

can be done before the plants are up.

Peeled cormels grow as much in one year as unpeeled ones do in two years (Falconer, 1891), and every cormel grows. M. Crawford's experience is that it is better to peel cormels the same day that they are planted; a number of his corms molded one year. It is essential that great pains be taken not to injure the cormels when peeling them, for any abrasion in the surface offers a place for the entrance of disease. If they are not peeled, they should be soaked for a day before planting.

The cormels should be planted early so that they may have a long season of growth, in order that they may gain

a large size. Although it is advantageous for the same reason to allow them to remain in the soil until late in the fall, commercially they can be much more easily handled if taken up when the tops are somewhat green.

This leads to the question of proper storage, which is about the same as for mature corms. Cormels are often stored in soil (Moore) just as removed from the parent corms, in a place where the temperature is approximately from 40° to 45° F. (Wilmore), where they are always



FIG. 38. GLADIOLUS CORM AND CORMELS

At the base of the large corm are usually found small corms, or cormels. These are unlike young corms; they are covered with a hard shell, or husk

moist and cool (Flanagan). Under these conditions they start much better than if dried out. C. S. Tait, a Georgia grower, writes: "When dug I pack them in dry sand, and they keep finely. I left them in the ground this season as we seldom have frosts that freeze deeper than one inch. They are coming up now [October 31, 1913]."

Cormels are frequently stored in cheesecloth bags, but oftener in trays. Thomann spreads the cormels on trays, grading them in three sizes by the use of sieves.

Summarizing, it may be said that cormels should be either peeled before planting, or soaked in rather warm water to soften their hard, dry coats. Besides this treatment, covering the bed with a burlap sack will result in a greater percentage of growth.

INDOOR CULTURE

Almost since their introduction, gardeners have grown gladioli as pot plants. The *nanus* varieties, *Gladiolus Colvillei*, or the standard *gandavensis* and *Lemoinei* hybrids, may be planted with equal success. It seems inadvisable to use the term *forcing* in this connection, since that word often carries with it the idea of high temperatures causing a premature blooming. The gladiolus apparently does not stand such treatment.

The following species are mentioned by Endicott (1888) as being adapted to pot culture: *G. tristis*, *G. recurvus*, *G. gracilis*, *G. cuspidatus*, *G. Watsonius*, *G. villosus*, *G. Milleri*, *G. alatus*, *G. sulphureus*, *G. carneus*. Each of these species has small corms producing dwarf plants and small flowers. In late autumn they should be placed in four- or five-inch pots, in a light, rich soil.

G. Colvillei and its white variety, The Bride, have been grown under glass to a considerable extent, but the whole *nanus* group has been neglected. Many of the *nanus* varieties are three weeks earlier than the *Colvillei*. Moreover they are not quite so rigid, and in many of them the foliage maintains its deep green color to a much greater extent than does the foliage of *Colvillei* varieties, since the latter is very likely to turn brown, at least at the tips. As the season begins with the first of April or May the plants bloom at a time when few others are in their prime. The flowers do not all come at one time but their blooming periods vary, thus extending their season of usefulness for the florist.

The corms should be potted not later than the first of December, and preferably in October or November. If the corms are placed five or six in a five-inch pot or individually in smaller pots, they can be shifted to larger pots or transplanted to the greenhouse bench. If preferred, they may be planted directly in benches. Fuld (1912), in describing cultural methods, says:

Many commercial growers to-day plant it right between the carnations without giving it any extra space, thus getting two crops where formerly they reaped but one.

They are exceedingly slow in showing growth and actually make but little growth until spring when the sun rises higher. At that time carnations are plentiful and cheap and many growers throw them out, thus making room for the gladiolus, but that is not at all necessary. While the above method may perhaps be handiest, these gladioli can be better grown if planted in flats and stored away in a cold frame and brought in during February or March when even then they should be forced with only moderate heat.

A slow growth produced by gentle forcing allows the foliage to develop perfect but if much forced the tip becomes yellow and brown and injures the sale of the flower. . . . This type is often called "early flowering" and this is right because the flowers appear from two to three weeks earlier than the earliest variety of any other type.

The corms may be placed in flats twelve by twenty-four inches in size, and when planted in this way fifty or seventy-five corms are required for each flat.

It seems best to afford some method of staking the plants when they are not grown among carnations. Several stakes, one at each end of the rows crosswise of the bench, with string stretched between, are sufficient.

The *nanus* varieties are very susceptible to attacks of red spider, and unless thoroughly and frequently syringed the crop gets badly dried up, resulting in a poor development of the spikes.

A few sorts that have been tried by the writer and found inexpensive as well as pretty are:

Apollon — fine deep pink.

Mathilde — white, faintly suffused with lavender; early; rather dwarf; said by many to be superior to The Bride.

Pink Perfection — a very robust variety.

Blushing Bride — lilacy white (7-1)⁷, the throat sulfury white (14-III), bordered by rosy magenta (169-III); a fine, well-open bloom; early.

Peach Blossom — a dainty rosy pink (118-1) bloom with a Rose Neyron red (119-II) throat blotch, and sulfury white (14-1) medial lines; a little larger bloom than most of the *Gladiolus nanus* varieties, and early; one of the best varieties in the group.

Minerva — an intensely bright geranium lake (89-IV) bloom with splashed blotches of deep cherry red (91-IV) and carmine (116-II) medial lines; seems inclined to have rather poor foliage.

Jeanne Poter — a good dark pink or deep cerise (123-1), blotched carmine-purple (156-II), fading lighter toward the center; produces a large number of blooms, and is well furnished with foliage.

Duchesse de Parma — a good, bright poppy color (84-1), with throat of lemon-yellow edged with crimson-carmine; blooms possess excellent substance and are well arranged on the spike; rather late-blooming; tall.

Virginie — an exceedingly dainty pure white bloom, with faint markings of Rose Neyron red; a compact bloom of good substance; excellent-appearing spike.

Bertha Johannsen — excellent rosy pink (118-II), more salmony in appearance than Peach Blossom; there is no blotch on the lower segments, but a slight marking is often found on the upper lateral petals; blooms of good size.

Roseus Maculatus — excellent Rose Neyron red (119-1), blotched with deep cerise (123-IV), the medial line of which is lighter; good substance, but rather loose.

Ackermanni — rich salmon-orange or rosy scarlet (90-1) flowers, very large and handsome; spikes very strong.

Königan Wilhelmina — lilacy white (7-1), lower petals blotched with deep rose-pink (120-IV), medial lines of blotches lighter.

⁷ These numbers refer to plates in *Répertoire de Couleurs* published by Société Française des Chrysanthémistes and René Oberthur.

The taller-growing and late-blooming varieties also are grown under glass to a great extent. Varieties are chosen for forcing which bloom early, have clear, light colors, and are vigorous and healthy. As before mentioned, one of the best methods of commercial culture is to place the corms among carnations. When planted in the short rows crosswise of the bench, they do not seriously interfere with the proper cultivation of the carnations. Cowee (1907), writing on this practice, says:

Most florists who force gladioli are apt to cut the spike too near the soil. . . . The bulb is damaged and will not the next year, either under glass or if grown outside, do as well. I have found that to give the forced bulbs one year in the ground before forcing the second time increases their vitality. . . . In solid beds I have produced excellent spikes in ninety days with the earliest varieties, but among carnations it usually takes from ninety-eight to one hundred and five days.

While the roots are forming on the bulbs, the temperature should not be over 50° at night, 60° during the day, but after they are well established 55° at night and 65° during the day is not too warm. . . . A light dressing of three parts of ashes and one of bone meal applied at the time of planting the bulbs will more than repay for the trouble and expense.

It is not necessary to first plant in pots, but most growers prefer to give the plants a good start by placing the potted corms underneath the bench in the carnation houses until good root systems are formed and tops are well started. If planted directly in beds the corms should be placed at a depth of two inches or more, for it is well to let the depth of planting provide a means of support.

Taft (1913) writes:

The bulbs need to complete their period of rest before they are started into growth, and nothing will be gained by planting them before the last of December, unless bulbs are used that have been forced the previous year. They can be grown either in beds, boxes or pots, but one of the latter will generally be found preferable, as it admits of keeping them in a cool place until the roots have formed, which is desirable. . . . It will be best to start them in pots and transplant them to the beds after the pots have become filled with roots.

They can be grown in the boxes about the same as Holland bulbs, using rather heavier and richer soil. The bulb should be barely covered with the soil, and as there is danger of the damping off of the shoots if over-watered, it is a good plan to have the surface half-inch of sand. Water thoroughly and place under the benches, where the temperature will be 50°, until the roots have filled the soil and the leaves have started. Gradually increase the heat to 60° and to 75°. When the buds begin to form, give liquid manure once a week. If properly handled, the flowers will be ready to cut by Easter.

Bebbington (1907) prefers to maintain a temperature of 50° at night and 60° in the daytime, and holds that a temperature of 70° is too high.

John Thorpe (Allen, 1911, pages 121-122), of Pearl River, New York, writes as follows of his experiences:

To force gladiolus successfully, however, requires attention at just the right time, and its wants should always be anticipated and supplied. Here is the routine of my practice: The bulbs I forced this year were also forced last year. They were then planted February 8, and the first twenty-five flowers were cut May 30. This year's work began December 27 by potting each bulb in a four-inch pot, using sandy loam, without manure, and placing the bulb on the top, pressing it down to hold it without any other covering; they were watered and then placed underneath the benches of

a carnation-house until the beginning of February. At that time those plants which had grown to the height of four inches were brought to the light and again watered. Placing them close together on a bench near the light, a little water was given from time to time, retarding the top growth, and encouraging root-action as much as possible. By the twentieth of the month the plants were gone over, and all those of an even size were planted together in rows about a foot apart, and nine inches apart in the rows. After planting those of one size, then another batch a size less was handled. This selecting into sizes pays for all the trouble it costs in preventing strong plants from overcrowding the weaker ones. My soil is rather a heavy sandy loam, and in this the bulbs were planted, the depth of the entire bed being a little more than four inches. The bulbs were scarcely covered even at this time, and this, I find, prevents the damping off of the plants during dull days, when they have commenced to grow rapidly, and are checked either by dark weather or by a cold spell. By the middle of March each plant was tied securely to prevent its falling over, which is generally ruinous to the flower-spike; a light mulching of stable-manure was then put on and well watered. From that time until the flowers were cut a good soaking of liquid manure was given each week. The gladiolus delights in moisture when well along in growth, but in its earlier stages too much water is death to it. The first twenty-five flowers were cut for Easter, or six weeks earlier than last year. The temperature was never higher than 50° at night, and during the daytime the house was ventilated whenever it could be kept above 70° F.

Another object of indoor culture is to extend the season of bloom in the conservatory. For this purpose the method of culture described by Kelway (1913) is substantially as follows: If it is desirable to have gladioli late, for decorating the conservatory, they may be grown with tolerably good effect. The corms should be potted singly in six-inch pots about the end of May, using a rich compost of yellow loam, old hotbed manure, and silver sand. They should then be plunged in a bed of very rich soil the rims of the pots being placed about two inches below the surface. In dry weather they will require to be kept tolerably moist with frequent waterings. As soon as frosts commence the pots should be lifted and placed in a cold greenhouse or vinery, and they should be brought into the conservatory as soon as the buds begin to open.

It is frequently recommended that some bulbs be potted of such varieties as are useful early in the spring or summer, four or five corms being placed in a six-inch pot and started in a temperature of 50° F. These can later be planted in the ground, and four or five weeks can thus be gained in blooming. Often, however, this method does not prove successful. It is difficult to handle the plants without breaking the tops, and they should be staked immediately on being placed in the garden.

INSECT AND ANIMAL PESTS

It seems safe to say that there is really no insect that is seriously injurious to the gladiolus. Dombrown (1873) reports serious damage in England due to wireworms. He believes that freshly turned-up sod should not be used, and writes as follows: "Three years ago I planted mine in a part of my garden which had up to two years before that been a meadow, and the previous season had potatoes in it. Half my roots

were devoured by wireworms, the destructive little things eating through the shoot just as it appeared above ground." W. P. Wright also mentions wireworms, in *Popular Garden Flowers*. He states that the grubs fasten on the corms in myriads, and soon make short work of a large collection. He recommends that if the corms are planted on new land from pasture, the turf should be taken away, not turned in, however deeply, and in the spring before planting Vaporite or Aporite should be dug in nine or ten inches below the surface.

The writer has seen no reference to injury from wireworms in this country. Weathers (1911) recommends trenching three feet deep in autumn, burying the topsoil containing the worms, and perhaps other grubs, at the bottom of the furrow. By this practice the worms are completely stifled and deprived of their vegetable diet; the subsoil will thus be free from the pest, and if well manured and exposed to the weather it will be in a good fertile condition in the spring.

The writer has noted a slight amount of injury due to the small wiry millepede, a Chilognatha. This may be the "wireworm" already referred to. The millepedes may be observed in the ashes under pots of gladioli grown indoors, and many of them are also noticed on the outdoor corms at the time they are being overhauled for winter storage. The condition known as scab may be due to these millepedes, but this is not definitely proved. If the corms are left to dry in a barn for some time, the holes bored by the millepede are filled with a jelly-like substance which one might at first think is frost. The injury due to these millepedes differs from diseased corms in that the areas of their attack are of regular shape and are metallic in appearance.

Most of the damage to gladioli caused by insects is on the parts of the plant above ground. The black aster beetle seems troublesome to many growers, the damage being to both buds and flowers. This is especially true late in the season.

H. A. Richardson reports the occurrence of arctiid moths, undoubtedly a species of the genus of tiger moths, *Eyprepia*. These moths are gregarious in habit, and they injure the flowers and spikes, but mostly the cuticle of the leaves. Grasshoppers and katydids have been reported as eating the blooms.

The red spider (*Tetranychus telarius* Linn.) is especially troublesome in a very dry season. This is a small mite, one-fiftieth of an inch long, which spins minute threads that are scarcely perceptible to the naked eye but that when very abundant give a grayish appearance to the leaves. The insects are rather reddish, though somewhat orange-tinged. Their principal injuries are to indoor plants, but they are also found in the open. When only a few are present they are not noticeable; but when

they are abundant, the leaves become pale in color and stunted. They effect their injury by sucking the juices from the leaves. Indoors they are more resistant to fumigation than are aphids or thrips. As they are very sensitive to moist conditions, the main method of control is by a thorough syringing with water. Sanitary methods of keeping down all weeds harboring them, and burning infested parts of the plants, are of prime importance.

A number of cases of injury by a black blister beetle have been reported. This is no doubt a beetle of the genus *Epicauta*, or possibly *Meloe*.

Van Fleet and others report the occurrence of a *Diabrotica* beetle. These are yellowish green, much like the cucumber beetles. On the trial grounds at Cornell they caused some injury by eating the unopened buds. If very plentiful they may be shaken on to sticky paper, as recommended by the California State Commission of Horticulture.

In *Success with Flowers* (Anonymous reference, 1901), a subscriber who inquires as to effective treatment for a root aphid, or root louse, which it is difficult to reach with insecticides, is answered as follows:

The piece of ground to be planted with gladiolus may be cleared of the insects by the use of coarsely ground tobacco that can be purchased at about ten cents a pound. A heavy dressing of the tobacco can be spread on the ground and forked in immediately before planting, or it may be dug in between the plants later in the season. . . . Potash salt in the form of kainit has been found to be injurious or destructive to the insects; nitrate of soda produces similar effects. If, therefore, these substances should be used as fertilizers, . . . they would at the same time destroy the pests, or at least lessen their number to the extent of rendering them harmless.

Cutworms have been especially abundant of late. They are the nocturnal larvæ of owlet moths, and according to Powell (1915) "start their depredations early in May, or even in late April, and continue until about the middle of June." The best remedy seems to be a poisoned bait made in one of various ways. For small garden spots a little paris green is mixed with some bran, the mixture then being made into a thick mush by the addition of sufficient molasses and water. This is sprinkled along the rows of gladioli. Munroe (1915) states that when large fields need to be treated, it is best to spread the bran, perhaps about a hundred pounds, on a barn floor, and sprinkle it with sweetened molasses water (enough to make it crumbly); over this is then scattered a pound of paris green, and the whole is mixed together thoroughly.

GLADIOLUS DISEASES⁸

Dr. L. M. Massey, of the Department of Plant Pathology, Cornell University, contributes the following brief résumé of the gladiolus diseases:

⁸ The Department of Plant Pathology at Cornell University is investigating the diseases of the gladiolus, and all samples of diseased plants or corms, as well as all correspondence concerning treatment for the prevention of disease, should be addressed to that department.

There are at least three important diseases of the gladiolus, namely, hard rot, dry rot, and scab. The first two are characterized by necrotic lesions of various sizes in the corms, the diseased area blending more or less gradually into the healthy tissue. Scab lesions have a sharp line of demarcation, a distinct ridge being formed around the border of the depression. The surface of the depression has a somewhat metallic luster. In the older scab spots there is a cavity beneath the metallic film, appearing as if eaten out by some insect.

The lesions of hard rot and dry rot are usually small in the autumn, when the corms are dug. The diseases advance while the corms are in storage, until by spring many corms are reduced to dry mummies. Scab lesions do not enlarge after the corms are placed in storage.

Hard rot and dry rot are caused by fungous pathogenes whose life histories do not materially differ. The two fungi live over winter in the corm and are thus carried to the soil at planting time. The fungi do not grow from the old corm directly into the offspring, but either grow out into the soil, whence they attack the corms, or else work along the sheathing leaf bases. In the majority of cases a diseased corm may be expected as a result of planting one that is diseased.

The cause of the scab disease is unknown. Attempts to connect some fungus with the diseased areas on the corms have failed. The lesions may be due to the attacks of certain insects, such as wireworms or millipedes, but no experimental data are at hand to prove or disprove this suggested possibility.

Various soil and corm treatments have been used in an effort to control the hard rot and the dry rot of the gladiolus. Corms have been treated with formalin, corrosive sublimate, hot water, dry heat, and so forth, at strengths as high as the corms would permit without injury. None of these treatments have proved effective. Soil has been treated with lime, acid phosphate, sulfur, lime and sulfur, and iron sulfate, in strengths as high as the grower could afford to use them, without protecting the corms from the attacks of these fungi.

The selection of healthy corms, which are planted in soil in which no gladioli have ever been grown, is the one process that has unfailingly resulted in the production of healthy offspring. This requires a rigid selection. No corms should be planted which show any signs whatsoever of disease after the husks are removed. Care should be exercised during the growing season to see that no infested soil nor diseased plant parts are carried to the soil in which the healthy corms are growing.

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Gladiolus Studies—III

Varieties of the Garden Gladiolus

Alfred C. Hottes



Field of Gladioli at Ithaca, New York

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PREFACE

Since its foundation in 1911, the American Gladiolus Society has had its official trial grounds on land owned by Cornell University under the management of the Department of Floriculture. One of the main objects of the work has been to test as many varieties of gladioli as possible in order to prepare descriptions which shall be the standards for those varieties. Seedlings also have been tested, in an attempt to determine their individuality as well as their value. Some synonyms have been found and noted in the descriptions of varieties.

The study has taken a longer time than was contemplated at its beginning, because some growers have been rather delinquent in sending varieties the first year they were requested. The work is by no means completed, since many varieties in the American market are as yet undescribed and the question of synonyms has hardly been touched.

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G. B. Babeock, Jamestown, New York
H. H. Baer, New Hyde Park, New York
Frank Banning, Kinsman, Ohio
Alvin Berger, Ventimiglia, Italy
G. D. Black, Independence, Iowa
A. T. Boddington, 120 Chambers Street, New York City
C. W. Brown, Ashland, Massachusetts
George Burchett, Hampton, Virginia
W. Atlee Burpee & Co., Philadelphia, Pennsylvania
John Cavers, Oakville, Ontario, Canada
Montague Chamberlain, Wellesley, Massachusetts
John Lewis Childs, Floral Park, New York
W. A. Christy, Kinsman, Ohio
E. F. Clark & Son, Wayland, Michigan
P. O. Coblenz, New Madison, Ohio
Arthur Cowee, Berlin, New York
M. Crawford & Co., Cuyahoga Falls, Ohio
E. H. Cushman, Sylvania, Ohio
H. A. Dreer, Philadelphia, Pennsylvania
E. T. Flanagan & Sons, Belleville, Illinois
Franken Bros., Deerfield, Illinois
W. E. Fryer, Mantorville, Minnesota
L. M. Gage, Wellesley, Massachusetts
C. B. Gates, Mentor, Ohio
Haage & Schmidt, Erfurt, Germany
Haentze & Co., Fond du Lac, Wisconsin

Max Herb, Naples, Italy
Dr. C. Hoeg, Decorah, Iowa
P. Hopman & Sons, Hillegom, Holland
R. E. Huntington, Painesville, Ohio
Iowa Seed Co., Des Moines, Iowa
Kelway & Sons, Langport, Somerset, England
C. H. Ketcham, South Haven, Michigan
W. E. Kirchhoff, Pembroke, New York
H. W. Koerner, Milwaukee, Wisconsin
E. H. Krelage, Haarlem, Holland
A. E. Kunderd, Goshen, Indiana
Victor Lemoine et Fils, Nancy, France
Mallory & Brown, Madison, Wisconsin
L. L. May & Co., St. Paul, Minnesota
Robert Mehlmann, Oshkosh, Wisconsin
S. C. Mellinger, Youngstown, Ohio
Henry F. Michell Co., Philadelphia, Pennsylvania
J. L. Moore, Northboro, Massachusetts
Munsell & Harvey, Ashtabula, Ohio
Perkins-King Company, West Mentor, Ohio
Wilhelm Pfitzer, Stuttgart, Germany
Kristian Prestgard, Decorah, Iowa
H. A. Richardson, Woodfords, Maine
D. W. C. Ruff, St. Paul, Minnesota
H. F. Smith, Geneva, New York
E. E. Stewart, Brooklyn, Michigan
E. Y. Teas & Son, Centerville, Indiana
J. Thomann & Son, Rochester, New York
B. H. Tracy, Wenham, Massachusetts
J. A. Travis, Elkhorn, Wisconsin
N. E. Tully, Hubbard, Ohio
John Umpleby, Lake View, New York
Vaughan's Seed Store, Chicago, Illinois
K. Velthuys, Hillegom, Holland
P. Vos Mz., Sassenheim, Holland
Warnaar & Co., Sassenheim, Holland
B. F. White, Terryville, Connecticut
W. A. Wilkinson, Morgan Park, Illinois
W. W. Wilmore, jr., Wheat Ridge, Colorado
G. S. Woodruff, Independence, Iowa
M. F. Wright, Fort Wayne, Indiana
C. Zeestraten & Sons, Oegstgeest, Holland

ALFRED C. HOTTES



AMERICA

THE STANDARD PINK VARIETY

GLADIOLUS STUDIES—III

VARIETIES OF THE GARDEN GLADIOLUS

ALFRED C. HOTTES

After nearly five years of testing varieties, the writer now ventures to publish descriptions of most of the varieties received for trial on the grounds of the Department of Floriculture in cooperation with the American Gladiolus Society.

The Modern Gladiolus Grower for November, 1915, editorially expresses the writer's attitude exactly in regard to the time necessary for testing varieties. It says:

The tendency of some growers, both amateur and professional, to condemn varieties of gladioli on one year's trial only is certainly wrong. In conversation recently with one of the most experienced commercial growers he stated that a variety could not be properly judged until it had been grown for three successive seasons, and this suggestion should be carefully remembered by those who are inclined to condemn without sufficient trial. Unfavorable climatic or local cultural conditions might account for failure to perform properly the first year a variety was tested. On the other hand, conditions for growing may be more favorable the first year and after growing for two or three years the results might be quite different. Don't be in too much of a hurry to accept or reject any particular variety as one of your standards until you have time to judge it.

The writer is especially concerned with synonyms. Much confusion in nomenclature has been caused by a difference in the standards or the tastes of hybridists. Groff, Coblenz, Kunderd, and many others, in the early years of their work, produced an excellent lot of seedlings which have been disseminated unnamed about the whole country. Other growers have recognized enough merits in them to justify naming. The result has been that two or more growers have named the same seedling. In many cases growers have mixed these miscellaneous bulbs with their own seedlings and felt that they had originated them. Adjustment can usually be made if it can be properly determined who first christened the variety. The confusion is becoming somewhat cleared up by the Nomenclature Committee of the American Gladiolus Society, whose business it is to register each new variety requested and establish a standard description of that variety.

Unfortunately it is impossible to settle all questions of this kind. One of the most puzzling has been the question of the proper name for Coblenz No. 312, or William Mason. Mr. Coblenz is sure that he originated No. 312, and that he sold it to Mr. Huntington and Vaughan's Seed Store. Mr. Huntington named it *Grenadier*, and Mr. Vaughan *Velvet*

King. The name *Grenadier* had been used previously by both Vilmorin and Lemoine. The next oldest name is thus *Velvet King*. Mr. Crawford, who originated the variety William Mason some twenty years ago, does not believe this is the same variety as the above-mentioned. However, on the trial grounds, the variety William Mason from Crawford, from Mallory & Brown, and from Teas was identical with *Grenadier* from Huntington and *Velvet King* from Vaughan. It is interesting to note that several other names have been applied to this variety, namely, *Emma* (by Coblenz), *Richmond Red* (by Teas), and *Sidney Grant* (by Ruff).

Under such circumstances, no matter how the question of a variety name is settled, some one feels that an injustice has been done. Nevertheless some authority must be vested in the Nomenclature Committee, else its existence is useless. It is now determined wise to submit, through the leading florists' publications, the names and descriptions of varieties before they are finally named. In this way any question of priority of name and individuality of variety can be openly discussed previous to final judgment.

METHODS USED IN TESTING AND DESCRIBING VARIETIES

When a variety is received for trial purposes, the name is copied on a filing card, together with the name of the donor, the date received, and if possible a short description of the variety as given by the firm from which the stock has been received. In the latitude of Ithaca planting can hardly be done before April 30, and often not until early May. Each year a new piece of ground is chosen for the planting in order to escape the possibility of disease due to a previous crop. The rows are plowed out about seven to eight inches deep and three and one-half feet apart. As the soil is a rather heavy clay loam, it is thought best not to plant deeper. With a shovel the furrows are made a little more level, and the loose lumps are removed. The varieties are placed one to each numbered stake, the corms standing approximately seven inches apart.

About a week after planting, according to weather conditions, the crust is broken over the rows in order that the young shoots may easily reach the surface of the soil. A coarse-toothed surfacer has been found to be about the best tool for this purpose. The particular tool used on the trial grounds resembles a rake except that it has only three long teeth. Up to the time of blooming, cultivation is continued both by horse and with the hoe.

Each day as the varieties come into bloom they are noted on the description blanks. Since the first bloom is often hardly characteristic in color and markings, the flower characters are noted several days after the first one opens.

CORNELL VARIETY TEST OF GLADIOLI

No.

NAME OLD NOS.

SYNONYMS

ORIGINATOR DATE INTRO. DONATED BY

SPECIES OBSERVER DATE

BLOOM — Size — Very large-large-medium-small.

COLOR marking }

SEGMENTS — Equal-unequal; connivent-separate.

UPPER — Horizontal-hooded-reflexed; broad-narrow. LOWER — straight-reflex; broad-narrow.

STAMENS — Color of filament; of style;

TUBE — Straight-curved; slender-stout; long-short; compact-loose.

SPIKE — Tall-medium-short; erect-curved-drooping; free-fair-bloomer-no bloom. No. blooms.

Branched?

REMARKS ON BLOOM — Compact, loose; keeping quality; substance.**HABIT OF PLANT** — Erect-drooping; tall-medium-dwarf. Height of plant.

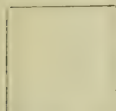
Spreading-compact.

GROWTH — Good-medium-poor. SEASON — Early-mid-season-late.**PROLIFICACY** — No. CORMS — Many-few. SIZE — Large-small. No. CORMELS — Many-few. SIZE — Large-small.**FOLIAGE** — Well-furnished-medium-poor; broad-medium-narrow; veins prominent-obscure.**COMMERCIAL VALUE** — CUT FLOWER — Extra good-good-medium-poor.

LANDSCAPE — Extra good-good-medium-poor.

VALUE AS A WHOLE — Extra good-good-medium-poor.**REMARKS:**

ÆSTIVATION



No. corms sent. No. that grew. No. that bloomed.

At the time of describing the varieties, little time is available for noting the name of the originator and the date of introduction. These facts are filled in later, usually during the winter. From catalogs and by correspondence with men who have introduced varieties, dates of introduction are noted.

An attempt is made in describing each variety to note all the important points in regard to growth and structure. The trial grounds usually possess from three to five bulbs of each variety, and it is therefore impossible to make authoritative notes descriptive of certain points. For example, it would be difficult to determine definitely that a variety was of good keeping quality. It might be possible to get an idea of the keeping quality, but since temperature and environmental factors throughout the blooming season vary so much it has been felt that this question would almost bear special investigation.

A definite standard of size has not been accepted, owing to the fact that ideas differ much as to just what is to be considered large and what small. In general, blooms ten centimeters or over in diameter are called large; those below seven centimeters, small; those between the two limits, medium-sized. (One inch equals approximately two and one-half centimeters.) Since the varieties tested here were given equal and identical culture, the sizes of the blooms should be proportional. Many of the varieties will be reported much too small. No attempt has been made to give exceptional culture for results; the plants have merely been given ordinarily good care.

The color of the perianth is carefully compared with the most comprehensive color chart available. The one used on the trial grounds here and accepted by the Color Chart Committee of the American Gladiolus Society is that of the Société Française des Chrysanthémistes, and is called the *Répertoire de Couleurs*. There are three hundred and sixty-five plates, and four variations of each color on each plate. Concerning each color, the chart indicates the names of certain other flowers that are of this particular color. Each person has a different conception of colors, so that it is highly valuable to standardize the color nomenclature. Black gives an interesting description of the variety Independence, the color of which is variously called by the catalogs light scarlet, light red, rosy pink, deep rosy pink to orange scarlet, and deep pink bordering on scarlet. By reference to the color chart, the color is found to be carthamin, or Lincoln, red (Plate 88, Shade II; in the descriptions the color is indicated only as 88-II). The color chart here shows the variety to be of the same color as *Euphorbia splendens* and of several zonal pelargoniums.

Besides the main color of the bloom, careful descriptions are prepared of the markings. The terms used in designating the characteristic markings are given beneath the drawing on the opposite page. In determining the colors of the stamens the color chart is not used, the color being merely a matter of personal opinion of the one describing the variety. The bloom is divided into two segments when comparing their positions and widths. When the upper and lower segments are together — in other words, when there has not been a decided division of the bloom horizontally — the term *connivent* is applied; the opposite condition is expressed by the term *separate*. When the upper segment is not erect nor decidedly hooded, the condition is called *horizontal*. The term *reflex* is applied to cases where the segments are rolled back in any way. The character of the perianth tube is not of great importance except as an additional means of identification of

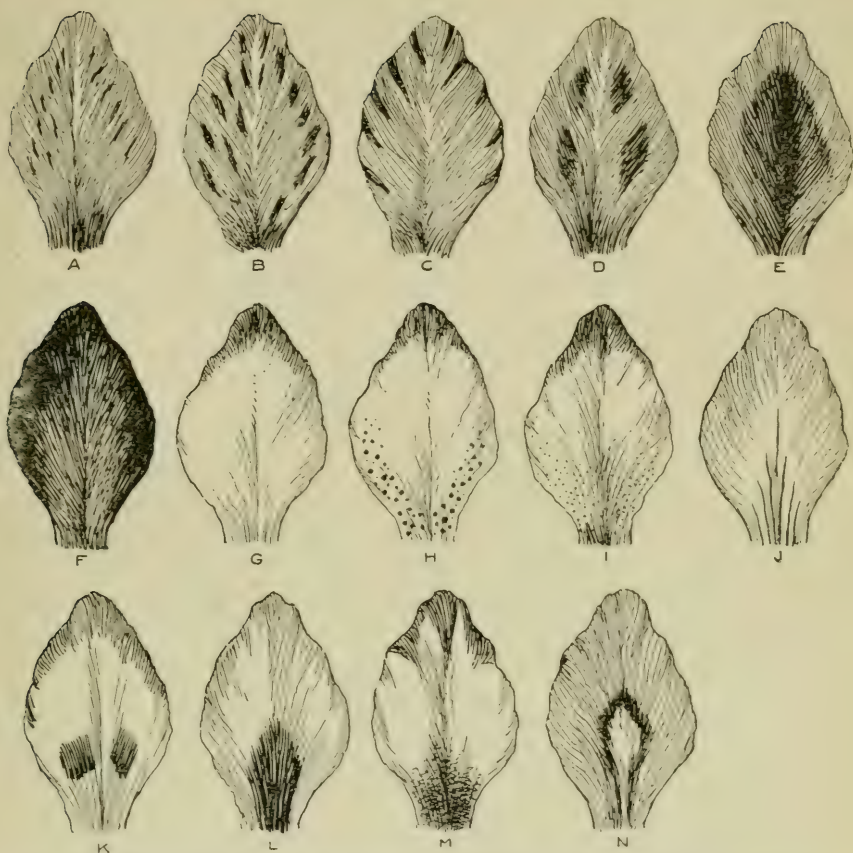


FIG. 39. MARKINGS FOUND IN PERIANTH SEGMENTS OF VARIETIES OF GLADIOLUS

- A, flecks (very small dashes)
 B, dashes or splashes (long irregular dashes)
 C, feathering (dashes or fine markings that originate at the outer edges of the segments)
 D, mottling (irregular spots wider and more prominent than dashes)
 E, suffusion (colors laid on as though painted on another color)
 F, blend (gradual transition from one tone of a color to another of the same color, or from one color to some other different color)
 G, clear throat (unmarked in any way)
 H, dots
 I, stippling (very fine dots in the throat)
 J, penciling (lines of the throat)
 K, mottling (irregular spots in the throat)
 L, blotch (regular, large areas of color on lower segments)
 M, marbling (an intermixed or clouded effect)
 N, the lozenge blotch found in many of the *nanus* varieties in which the center is clear and the outer edge much deeper in color
 A, B, C, D, E, F, and G are found in various parts of the perianth. H, I, J, K, L, M, and N are throat markings

a variety in which the character seems rather constant. The substance, the form, and the peculiarities of the bloom are carefully noted. Comparisons with other somewhat similar varieties are made. It has been interesting, also, to get a little information concerning the number of blooms open at one time on a spike.

As each variety comes into bloom it is tagged, and the date recorded. Each year these dates are compared. Seasons vary greatly as regards temperature, moisture, and in various other ways, so that it is difficult to say that a certain variety blooms in a definite number of days. This year perhaps the season is hot and moist, and the variety blooms in seventy-five days; the next year conditions are wholly different, and it takes eighty-five days. The method followed has been to take the average number of days from planting to blooming. The condition or maturity of the corm also has much to do with the precocity of blooming, but as an indicator of relative earliness and lateness, it has seemed of value to give a definite number of days.

In describing the spike, those above one hundred centimeters are considered tall, those below sixty centimeters rather dwarf, and the others of medium height. Height is measured from the soil to the tip of the spike. The number of blooms per spike is given. Here again criticism would be just, since exceptional corms might produce many more blooms. The average is taken as the number to be recorded. The number of shoots and spikes per corm is also noted.

The habit of a gladiolus really resolves itself into a consideration of erectness, height, and whether of spreading or of compact growth. Compact plants are those in which the leaves are not decidedly divergent nor drooping.

The question of vigorous growth is judged by abundance and excellence of broad foliage as well as by strength of spike.

Due to the heavy soil of the trial grounds, cormels do not attain a large size, and many times do not develop. The notes in regard to prolificacy should thus be read with these points in mind. In determining the size of the corm, the size when received or when planted is compared with the size at digging. If the corm attains on the average a large size, the variety is given the benefit of the doubt and is said to produce large corms. With age, corms normally large break up into a number of smaller ones. The size has been judged from corms supposedly in their prime. From year to year the descriptions are compared. If they differ widely from previous years, they are changed. The writer has not found such great changes in color from year to year as many growers report. The chief difference is found in so-called white varieties,¹

¹ Gladiolus studies — II. Culture and hybridization of the gladiolus. Cornell Extension Bulletin 10, p. 230.

which often develop a considerable rose tinge in the perianth during certain seasons or on certain soils. This coloration has been noted in the variety Peace, which is always rather feathered on this trial ground.

In the cases where descriptions of varieties were to be had from catalogs, they were considered, and often excerpts from them are included in the descriptions.

Careful drawings were frequently made, showing the markings of the petalage. Numerous photographs have been taken of the varieties. More attention has been given to procuring the proper representation of flower characters than to obtaining artistic results and full or perfect spikes.

On the line with the originator in the descriptions that follow, are noted such varieties as have been registered by the nomenclature committee of the American Gladiolus Society, in each case mention being made of the year of registration and the name of the person registering the variety, if it differs from that of the originator.

A. B. DAVIES

Originator — Kelway. Intro. 1909

Group — Gandavensis

Stock from Kelway

Bloom — Medium size (8 cm.). Tube almost straight, stout, short. Segments unequal, connivent; the upper reflexed and slightly ruffled, the lower reflexed, broader than the upper. Stamen filaments white, red tinge; anthers rose, violet sutures. Perianth Lincoln red (88-I) very thickly splashed with cerise (91-III), white stripe on each of lower segments. Blooms well arranged, of an attractive color, per-haps too mottled for commercial value.

Season — Early; 68 days.

Spike — Medium tall (84 cm.), erect, fair number of blooms (10), slender.

Habit — Erect, medium tall, rather spreading.

Growth — Medium vigorous; plant well furnished with short, medium broad leaves.

Corms — Medium size; cormels, few.

ABDEL KADER

Originator — White

Group —

Stock from White

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink tipped; anthers violet. Perianth deep carmine-violet (174-III). A compact bloom of good tough substance.

Season — Mid-season to late; 89 to 95 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (13), not branched.

Two spikes frequently borne per corm.

Habit — Erect, tall, spreading.

Growth — Poor; plant well furnished with narrow leaves, much diseased.

Corms — Medium size; cormels, few.

ADELINA

Originator — Kelway. Intro. 1908

Group — Childsii

Stock from Kelway

Bloom — Large (12.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments pink; styles white. Perianth madder lake (brighter than 122-IV) with carmine lake pencilings on a yellow-green throat. Medial lines of lower segments deeper in shade. Bloom good clear pink, wide open.

Season — Mid-season, mid-August; 91 days.

Spike — Medium tall (87 cm.), erect, branched, a fair number of blooms (18 on main, 7 on secondary).

Habit — Rather drooping, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few.

ADOLPHE JAENICKE

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Large (11 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments pinkish; anthers violet. Perianth brighter than rosy pink (118-IV), mottled Tyrian rose (155-I) over a white throat. Color good and clear; the mottled throat delicate. Substance medium good, shape good, but bloom rather loose.

Season — Mid-season to late; 106 days.

Spike — Medium tall (87 cm.), drooping, a fair number of blooms (11), not branched. Two spikes often borne per corm.

Habit — Drooping, medium height, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Small or medium size; cormels, few or none.

AFTERGLOW (Christy)

Originator — Christy. Seedling 1903

Group —

Stock from Christy

Bloom — Medium large (8-10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper broad and reflexed, the lower reflexed and narrower. Stamen filaments pinkish; anthers delicate lavender. Perianth greenish white (15-IV), often with suffusion of carmine on upper segment. Large blotches of ox blood red (94-II), bordered with pale yellow-green on the lower segments. The bloom much resembles that of Madame Lemoinier, but Madame Lemoinier does not have the bordering of yellow-green. The flower possesses good shape and medium good substance.

Season — Mid-season, first week of August; 80 to 85 days.

Spike — Medium tall (97 cm.), erect, though often crooked, thin, a fair number of blooms (12), generally unbranched.

Habit — Erect, tall, spreading.

Growth — Medium; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific, large.

AFTERGLOW (Cowee)

Originator — Groff, 1904. Reg. A. G. S., 1914, Cowee

Group —

Stock from Cowee

(Described from cut spikes.)

Bloom — Large (11 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower narrower. Stamen filaments pinkish cream; anthers cream, lilac sutures. Perianth salmon-fawn, Tyrian rose (155-I) blotch terminates in white medial line. A rather loose bloom of medium good substance, well open.

Season — Mid-season to late, September 9, 1913.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (9), not branched.

Habit — Erect, tall.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms —

AJAX

Originator — Childs
Group — Gandavensis
Stock from Childs

Bloom — Small (6.5-7 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth cardinal-red (112-1), striped on white ground. Tyrian rose (155-11) stripes on each of lower segments. Flowers often on all sides of the spike.

Season — Mid-August; 97 days.

Spike — Medium dwarf (70 cm.), erect, a fair number of blooms (17), not branched.

Habit — Erect, dwarf, spreading.

Growth — Medium; plant medium well furnished with narrow leaves.

Corms — Medium size; cormels, few.

ALASKA

Originator — Childs. Intro. 1911. Reg.
 A. G. S., 1912
Group — Childsii
Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal with reflexed edges, the lower reflexed and narrower than the upper. Stamen filaments cream; anthers violet. Perianth lilacy white (7-1), with Tyrian rose (155-1) penciling or dotting on lemon-yellow throat. A compact bloom of medium good substance. Five blooms open at once.

Season — Early September; 113 days.

Spike — Medium height (65 cm.), erect, a fair number of blooms (13), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ALICE CAREY

Originator —
Group — Childsii
Stock from Teas; Babcock

Synonyms — Probably same as Snowrest of Livingston Seed Company; much like Snowbank of Cowee.

Bloom — Medium size (7 cm. and larger). Tube perfectly straight, medium slender, long. Segments unequal, connivent; the upper slightly reflexed and broader than the lower narrower segment. Stamen filaments white; anthers dark blue. Perianth pure white with solferino-red (157-IV) splashes in throat. This variety does not contain the areas of yellow that are found in Snowbank. An excellent nearly clear white landscape or commercial variety. Rather good substance, often blooms on all sides of spike.

Season — Mid-season, early August; 86 days.

Spike — Medium tall (89 cm.), erect, a fair number of blooms (15 on main, 5 on secondary), more branching than Snowbank. Two spikes per corm.

Habit — Erect, medium tall, rather compact.

Growth — Vigorous; plant growth medium poor, lax foliage, inferior to Snowbank in foliage.

Corms — Medium size; cormels, prolific, medium size.

ALICE CHAMBERLAIN

Originator — Kunderd
Group —
Stock from Chamberlain & Gage

Bloom — Medium size (8 cm.). Tube curved, very slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers deep violet. Perianth brighter than plum violet (172-IV) with white areas at the sides of the throat. Segments edged with white. The color is the same as that of Empress of India (Velthuys) except for white edging of the segments.

Season — September 3, 1913; 113 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (12), not branched.

Two spikes frequently borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad, drooping leaves.

Corms — Medium size; cormels, prolific.

ALICE ROOSEVELT. See Hollandia.

ALL-A-GLOW

Originator — Miller

Group — Childsii

Stock from Childs

Bloom — Large (14 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments reddish white; anthers red. Perianth scarlet (85-IV), with an amber-white throat speckled and penciled with French purple (161-IV). A compact bloom of medium substance. Excellent glowing color. Seven blooms open at one time.

Season — Mid-season; 78 days.

Spike — Medium height (85 cm.), erect, a fair number of blooms (21), two branches.

Habit — Erect, medium dwarf, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

ALOIS NERGER

Originator — Pfitzer. Intro. 1914

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (9.5 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers lilac. Perianth carthamin red (88-I), feathered and suffused with pale slate-lilac, throat blotched with near blood red (93-IV). A rather muddy color. Somewhat ruffled edges. A compact bloom of excellent substance.

Season — Mid-season; 88 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (17), branched. Two spikes usually produced per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, prolific.

AMARYL

Originator —

Group — Lemoinei hybrid

Stock from Tracy

Bloom — Medium size (8.5 cm.). Tube straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers red. Perianth poppy color (84-I), amber-white (12-I) medial lines, and throat blotched with blood red (93-IV). Good clear colors, attractive throat markings. Compact bloom of good substance.

Season — Mid-season; 88 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

AMERICA

Originator — Banning, Groff, and Christy (intro. 1900) all claim the honor

Group — Gandavensis × Lemoinei (May × Madam Auber)

Stock from Childs; Umpleby

Synonym — Banning's name for this variety was Reuben H. Warder.

Bloom — Large (13 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper slightly reflexed and broad, the lower reflexed and narrower. Stamen filaments pink; anthers lavender. Perianth lavender-pink, a more rosy tint of mauve-rose (153-IV), the color blending to almost white as it approaches the throat; the throat marked with Tyrian rose (155-III). This is the standard commercial variety at the present time. A delicate color, well formed. Not so good substance as that of Panama. (See descriptions of Mapleshade and Panama.) Seems excellent for forcing.

Season — Mid-season, mid-August; 87 days.

Spike — Medium tall (86 cm.), erect, a fair number of blooms (20 on main, 7 and 10 on branches).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

AMERICA'S LADY

Originator — White

Group —

Stock from White

Bloom — Medium size (8-9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilacy white; anthers violet. Perianth mauve-rose, with a lemon-yellow throat spotted with Tyrian rose. A rather loose bloom of rather good substance.

Season — September 1; 111 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; few cormels formed, but the originator says that the variety is prolific.

AMETHYST

Originator — Stewart

Group —

Stock from Stewart

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed and broader. Stamen filaments white with red tips; anthers violet. Perianth rosy magenta (169-IV), with blotch of amaranth-red (168-IV) terminating in dash of lemon-yellow. The lower lip segment is very narrow. Bloom compact and of good substance.

Season — Latter part of August, 1913; 103 days.

Spike — Medium tall (82 cm.), erect, a fair number of blooms (12-15), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium small; cormels, few or none.

ANDRÉ CHENIER

Originator — Lemoine

Group — Lemoinei

Stock from Childs

Bloom — Small (7 cm.). Tube curved, stout, very short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments dirty white; anthers light lavender. Perianth pale reddish lilac (131), splashed and feathered deeper. Lower segments with yellow-green (16-IV) tips, and blotched with purple-garnet (165). Good substance, excellent colors. — Too small.

Season — Mid-season to late; 112 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms.

Habit — Erect, medium height, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Small; cormels, few or none.

ANGELINA*Originator* — Kelway*Group* — Childsii*Stock from* Kelway

Bloom — Medium size. Tube curved, slender, long. Segments nearly equal, connivent; the upper rather hooded and broad, the lower reflexed and narrower. Stamen filaments white; styles white. Perianth madder lake (122-IV), splashed occasionally with red. A yellow blotch in throat streaked with geranium (111-I). Good keeping qualities.

Season — Mid-August; 85 to 90 days.

Spike — Medium tall, erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves, prominently veined.

Corms — Medium size; cormels, medium size, few.

(Described by George J. Burt.)

ANNIE WIGMAN*Originator* — Hopman*Group* —*Stock from* Warnaar

Bloom — Small (7 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broader than the lower reflexed segment. Stamen filaments cream; anthers light lavender. Perianth yellowish white (13-III), with lemon-yellow (21-I) throat on which is a lilac-purple (160-IV) splashed blotch. A compact bloom of medium good substance and dainty color. Six blooms open at one time.

Season — Mid-season, mid-August; 96 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (12), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with narrow leaves.

Corms — Medium size; cormels, large, medium prolific.

ANTON BÜCHNER*Originator* — Pfitzer. Intro. 1914*Group* — Gandavensis*Stock from* Pfitzer

Bloom — Large (10-11 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers white, violet sutures. Perianth carthamin red (88-I) with amber-white (12-I) throat and medial lines. Segments feathered with deep carthamin red (88-IV). Good color. Six blooms open at once.

Season —

Spike — Medium tall (105 cm.), erect, many blooms (22), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

APRIKOSA*Originator* — Pfitzer. Intro. 1913*Group* — Gandavensis or Lemoinei*Stock from* Pfitzer

Bloom — Medium size (9 cm.). Tube nearly straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth pale blush (137-I), very thickly feathered with crimson-carmine (159-IV), and a large attractive blotch of French purple (161-II) bordered by amber-yellow (28-II). An excellent spike of a bright, showy color. A compact bloom of excellent substance. Nine to eleven blooms open at one time.

Season — Mid-season; 88 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large size; cormels, prolific.

ARIZONA*Originator* — Kunderd. Reg. A. G. S., 1914*Group* —*Stock from* Wright

Bloom — Medium size (8 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers salmony. Perianth lilac-rose (152-IV), medial lines of lip French purple (116-IV) shading lighter on each side into a blotch. A compact bloom of good color and substance. Five blooms open at one time.

Season — Mid-season; 80 to 85 days.

Spike — Medium tall (105 cm.), erect, a fair number of blooms (18), branched. Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant very well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

ARTHUR TOMS*Originator* — Kelway, 1900*Group* — Kelwayi*Stock from* Kelway

Bloom — Large (11 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal, the edges incurved, the lower reflexed and narrower. Stamen filaments pinkish; anthers lavender. Perianth fiery red (80-IV); in some there are no markings, in others crimson-red (114-IV) pencilings merging into fiery red form a blotch. The outer segments are conspicuously larger than the inner. The color is rich, brilliant, and velvety.

Season — First of August; 73 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (20). Two spikes often borne per corm.

Habit — Very erect, medium tall, medium compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ASHES OF ROSES*Originator* — Christy*Group* —*Stock from* Christy

Bloom — Small (6 cm.). Tube straight, medium slender, medium long. Segments nearly equal, connivent; the upper horizontal and somewhat hooded, the lower but slightly reflexed and broader. Stamen filaments rose; anthers lavender. Perianth, tips of segments in most cases violet-lilac (175-III) merging into flesh color (139-IV), blotches of Corinthian red (105-II), medial lines somewhat reddish. Christy says: "Seems very good for funeral work with wreaths of like color." Color is inexplicable, somber, washy.

Season — Mid-August; 88 to 90 days.

Spike — Medium short (61 cm.), erect, a fair number of blooms (14).

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant medium well furnished with broad leaves.

Corms — Large; cormels, few.

ATTRACTION*Originator* — Childs. Intro. 1906. Reg. A. G. S., 1914*Group* — Childsii*Stock from* Childs

Bloom — Medium large (10 cm.). Tube slightly curved, medium stout, medium long. Segments unequal, connivent; the upper horizontal and broader than the lower straight segment. Stamen filaments white; anthers dark violet. Perianth cardinal-red (112-I), with a white streak on lower segments, and a creamy white throat. No markings except this. The flower is well open, the color clear and bright.

Season — Rather early, August 2, 1912, to August 9, 1913; 72 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms (12). Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant furnished with medium broad foliage.

Corms — Medium size; cormels, prolific.

AUGUSTA

Originator — Hallock

Group — Gandavensis

Stock from Umpleby; Childs

Bloom — Medium size (8.5 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and narrower than the lower. Stamen filaments white; anthers lavender. Perianth lilacy white (7-1) splashed and feathered with solferino-red (157-1), the medial lines of the lower segments also solferino-red. Throat penciled. Much lilac is usually developed so that it can hardly be called pure white.

Season — Mid-August; 102 days.

Spike — Tall (118 cm.), erect, an abundance of bloom (18 on main, 9, 10, and 11 on secondaries).

Habit — Erect, tall, rather spreading.

Growth — Vigorous; plant well furnished with medium broad leaves, prominently veined.

Corms — Medium size; cormels, few, small.

AURORA (Childs)²

Originator — Miller

Group — Childsii

Stock from Childs

Bloom — Small (6-7 cm.). Tube curved, stout, short. Segments nearly equal, connivent: the upper hooded and broad, the lower reflexed and narrow. Stamen filaments rosy white; anthers lilac. Perianth light violet-rose (154-1) thickly feathered with solferino-red (157-IV) and blotched with plum-violet (172-IV), tipped by spot of yellow. A bright color. A compact, bell-shaped bloom of good substance, but very brittle. Four blooms open at one time.

Season — Rather early; 72 days.

Spike — Rather tall (105 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with narrow leaves.

Corms — Medium size; cormels, few.

AURORA (Hoeg). See Hiawatha.

AUSTIN No. 25

Originator — Austin

Group —

Stock from Austin

Bloom — Very large (12-13 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper broad, the lower narrower. Stamen filaments salmon-pink; anthers lavender. Perianth madder lake (122-I, but more reddish) with a large blotch of deep madder lake (122-IV, but brighter). The bloom is very loose, the segments rolled and ruffled — an objectionable feature.

Season — Early September; 104 days.

Spike — Medium tall (80 cm.), erect, producing blooms freely (20 on the main and 9 on the secondary).

Habit — Erect, medium tall.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, prolific, large.

²Lemoine also catalogs a variety by this name.

AUSTIN No. 30*Originator* — Austin*Group* —*Stock* from Austin

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments white; anthers violet. Perianth pure mauve (181-III and -IV), with an amaranth-red (168-IV) blotch in the throat and lighter medial lines. An excellent clear glistening color, but the substance is not very good.

Season — September 1; 103 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (15), not branched.

Habit — Erect, tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

AUSTIN No. 52*Originator* — Austin*Group* —*Stock* from Austin

Bloom — Very large (12 cm.). Tube slightly curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed. Stamen filaments pinkish white; anthers lavender. Perianth pure white with a Tyrian rose (155-III) intermixed throat. The segments are also slightly suffused with Tyrian rose. The bloom is large, well arranged, nearly clear white, and well open. It could be well called an extra good cut-flower and landscape variety.

Season — Mid-September; 105 to 110 days.

Spike — Medium tall (90 cm.), erect, producing blooms freely (19).

Habit — Erect, medium tall.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, small.

AUSTIN No. 55. See Rose Wells.**AUSTIN No. 56***Originator* — Austin*Group* —*Stock* from Austin

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments white; anthers gray. Perianth somewhat brighter than madder lake (122) and pinker than poppy color (84), with large scarlet (85-III and -IV) irregular blotches on pale yellow-green throat, white medial lines. Color bright, and substance fairly good.

Season — September 1; 102 days.

Spike — Tall (112 cm.), erect, free blooming (19 on main and 6 on secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

AUSTIN No. 57*Originator* — Austin*Group* —*Stock* from Austin

Bloom — Large (11 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower narrower. Stamen filaments reddish white; anthers violet. Perianth rosy pink (118-IV) with large broad blotches of scarlet (87-I) on lower segments. Color fades from outer edge of segment toward center. Bloom well open, well arranged, and excellent in color; substance not exceptional.

Season — Mid-season to late; 107 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, prolific.

AUSTIN No. 58*Originator* — Austin*Group* —*Stock from* Austin

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal, with reflexed edges, the lower broader and reflexed. Stamen filaments pinkish; anthers yellow. Perianth rosy pink (118-IV) with the edges marked slightly darker, the lower segments with a scarlet (87-I, only more russety) throat and deep medial line. Bloom of good substance and delicate color.

Season — Early August to early September; 92 days.

Spike — Tall (107 cm.), erect, free blooming (20), two branches. Two spikes frequently occur per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

AUTEN'S 7-2*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth deep cerise (123-IV), a sulfur-white throat marked with a deep French purple (161-IV) blotch. Color somewhat mottled, not clear. Bloom of good form and substance; color fairly acceptable, even though not clear.

Season — September 5, 1912; 106 days.

Spike — Tall (101 cm.), erect, a fair number of blooms (16 on main, 5 on secondary). Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Exceptionally vigorous. In one case five shoots were produced per corm.

Plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, very prolific, small.

AUTEN'S 8-1*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper reflexed and narrow, the lower reflexed and broader. Stamen filaments white with pink tips; anthers violet. Perianth coral-red (76-III), with a strawberry red (110-IV) blotch on lower lip fading to coral-red and terminated by a light yellow-green dash. Color good and clear. Auten says: "Color dull in indoor light."

Season — Mid-season, mid-August; 70 to 85 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Large; cormels, few.

AUTEN'S 9-14*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower narrower and reflexed. Stamen filaments white; anthers reddish lilac. Perianth Lincoln red (88-I) with a deeper Lincoln red intermixed blotch in the throat. Bloom of good shape, well open, of good substance, but not of a clear color.

Season — Late July to August; 72 days.

Spike — Tall (102 cm.), erect, free blooming (23), branched.

Habit — Erect, tall, medium spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, medium prolific.

A. W. CLIFFORD*Originator* — Kunderd. Intro. Brown*Group* —*Stock from* Brown

Bloom — Medium size (8 cm.). Tube nearly straight, medium slender, very long. Segments unequal, connivent; the upper hooded and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth old carmine-red (107-IV) with amaranth-red (168-IV) throat and lighter lilacy-tinted medial lines. Rather compact bloom of medium substance, slightly ruffled. Four blooms open at one time.

Season — Early; 69 days.*Spike* — Tall (110 cm.), erect, a fair number of blooms (10), branched.*Habit* — Erect, tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium large; cormels, medium prolific.**AZURE***Originator* — Stewart. Intro. 1909*Group* — Lemoinei (?)*Stock from* Stewart

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper hooded and narrower, the lower straight and broader. Stamen filaments lilac; anthers violet. Perianth bright violet (198-II) with a near amaranth-red (168-IV) blotch. Bloom exceedingly compact and of good substance, but color is rather washy.

Season — Mid-season; 82 to 87 days.*Spike* — Medium tall (75 cm.), erect, a fair number of blooms (12), not branched.*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, prolific.**BALTIMORE***Originator* — Cowee, 1910. Reg. A. G.

S., 1914. Cowee

Group —*Stock from* Woodruff*Synonym* — Formerly called Salmon Queen by Woodruff.

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments salmony; anthers salmony white. Perianth salmon-pink (126-I), color deeper at edges; lower lip blotched with fire red (80-IV) and deeper. Excellent color. Rather loose bloom of medium good substance. Two or three blooms open at one time.

Season — Mid-season; 82 days.*Spike* — Medium tall (75 cm.), erect, a fair number of blooms (9-12).*Habit* — Erect, medium tall, compact.*Growth* — Medium vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, prolific.**BARCLAY***Originator* — Childs. Reg. A. G. S., 1914*Group* — Childsii*Stock from* Childs

Bloom — Large (13 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrow. Stamen filaments white with pink tips; anthers violet. Perianth rosy pink (118-IV) with an amber-white throat. Bloom well open and of good substance.

Season — August 26.*Spike* — Medium tall (80 cm.), erect, a fair number of blooms (17 on main, with 8 on secondary).*Habit* — Erect, medium tall.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Large; cormels, few, medium size.

BARON JOSEPH HULOT*Originator* — Lemoine*Group* — Lemoinei*Stock from* Dreer; Gage

Synonyms — Also written Josef Hulot. This variety has often been erroneously given as a synonym of Blue Jay (Groff); Blue Jay (Childs) is, however, a synonym.

Bloom — Medium size (8-9 cm.).

Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed and narrow. Stamen filaments lilac; styles whitish. Perianth velvety purple with lemon-yellow (21-11) dash on medial lines of lower segments. Resembles Heliotrope except that Heliotrope has red dashes on lower segments, while Baron Joseph Hulot has lemon-yellow dashes. The pollen shed on the dark velvety segments causes them to appear shabby.

Season — Mid-August to late August; 82 to 95 days.

Spike — Medium tall (80 cm.), erect, often curved, blooms freely.

Habit — Drooping, medium height, spreading.

Growth — Vigorous; plant well furnished with narrow leaves.

Corms — Medium size; cormels, few.

BEACON FIRE*Originator* — Christy*Group* —*Stock from* Christy

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers red-violet. Perianth cherry-red (91-IV) with drab feathering and drab-red intermixtures in the throat. Almost a self color, excellent, deep, the blotch not contrasting. Bloom compact and of good substance.

Season — Mid-season to late, late August; 112 days.

Spike — Medium tall (85 cm.), erect, Two spikes often appear per corm, as



FIG. 40. BARON JOSEPH HULOT

a fair number of blooms (16), branched, well as many suckers.

Habit — Erect, medium tall, rather compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, many.

BEAUTY*Originator* — May*Group* —*Stock from* May

Bloom — Medium size (8 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers violet. Perianth deep carmine-purple (156-IV), darker dash in throat. Exceedingly brilliant. A self color except for very slightly deeper line in throat. Compact bloom of medium good substance. Six blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

BELLE MAUVE*Originator* —*Group* — Lemoinei (?)*Stock from* Warnaar

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments lilacy white; anthers violet. Perianth pure mauve (181-I) often feathered deeper, with lilacy white throat and a deep mauve (181-IV) blotch. Well-open, compact bloom of rather good substance. Three blooms open at one time.

Season — Early August; 83 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (21).

Habit — Very erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, medium prolific.

BEN HUR*Originator* — Childs*Group* —*Stock from* Teas

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments white, scarlet tips. Perianth light scarlet (85-II) feathered with deeper scarlet, the lower segments with a finely lined blotch of scarlet (85-IV, but with less yellow than IV). Teas describes the color as salmon-rose.

Season — Mid-season; 105 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms, branched.

Habit — Erect, medium height, spreading.



FIG. 41. BERTHA COMSTOCK

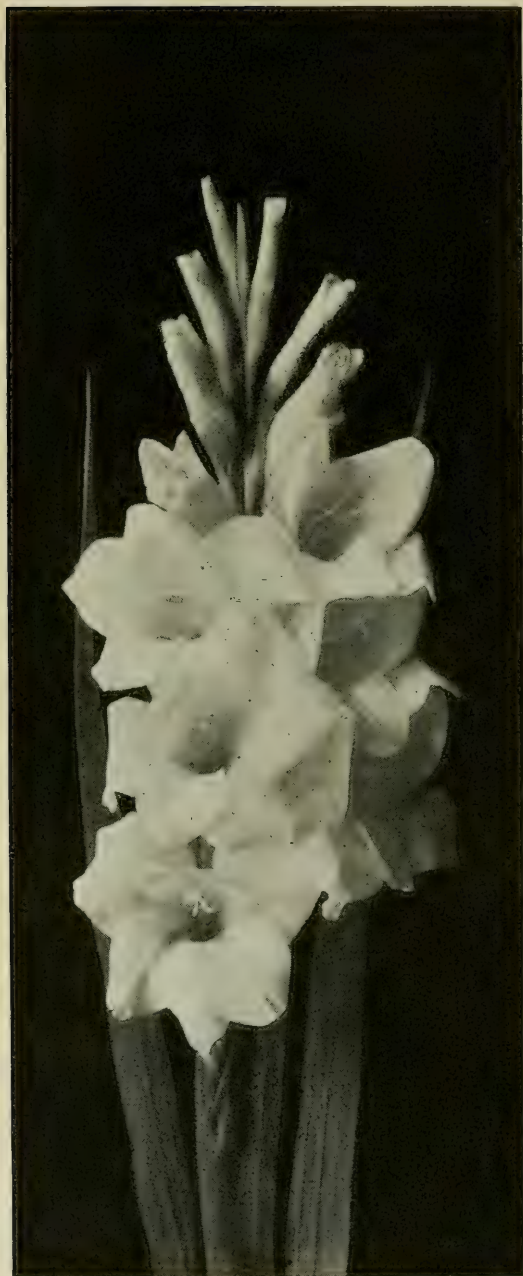


FIG. 42. BERTREX

Growth — Good to medium; plant medium well furnished with medium narrow foliage.

Corms — Medium size; cormels, few.

BERTHA COMSTOCK

Originator — Coblenz

Group —

Stock from Coblenz

Bloom — Medium size (8 cm.).

Tube curved, medium stout, short. Segments unequal, connivent; the upper horizontal with slightly ruffled edges and a trifle narrower than the lower reflexed segment. Stamen filaments white; anthers violet. Perianth carmine-purple (156-I), thickly feathered with dark carmine-purple (156-IV). Could be called a red-and-pink-striped bloom.

Season — Mid-season, late August; 94 to 97 days.

Spike — Attractive, long (145 cm.), erect, blooms freely (26 on main, 17 and 18 on secondaries).

Habit — Erect, tall, compact.

Growth — Exceptional; plant well furnished with broad leaves.

Corms — Large; cormels, many.

BERTREX

Originator — Austin.

Reg. A. G. S., 1914

Group —

Stock from Austin

Bloom — Medium size (8 cm.).

Tube nearly straight, slender, long. Segments unequal, connivent; the upper slightly reflexed and broad, the lower reflexed and broader. Stamen filaments white; anthers white, purple sutures. Perianth lilacy white (7-II), two Tyrian rose (155-I) lines in the throat and pale yellow-green medial lines. A nearly pure white, dainty bloom of medium substance. Seems good for forcing; blooms are produced in about 112 days. Six blooms open at one time.

Season — Middle to late August; 97 to 102 days.

Spike — Medium short (61 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium height, spreading.

Growth — Extra vigorous; plant well furnished with medium narrow leaves

Corms — Large; cormels, prolific.

BESSIE RAND

Originator — White

Group —

Stock from White

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments white; anthers lavender. Perianth rosy pink (118-11) with clear yellow-green blotches on lower segments. A good color. The two lower lateral segments are laterally folded.

Season — Mid-season, late August; 84 to 90 days.

Spike — Tall (108 cm.), erect, blooms freely (17 on main, 6 on side branches).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium to narrow leaves.

Corms — Medium size; cormels, small, borne abundantly.

BIG MEDICINE

Originator — Teas

Group —

Stock from Teas

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed segment. Stamen filaments pinkish white; anthers violet. Perianth rosy pink with faint Tyrian rose (155-1) intermixtures on a lemon-yellow lip. A very dainty color; bloom well arranged and of good substance.

Season — Late, late September; 120 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (9-12).

Habit — Erect, medium height, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, small, few.

BIRD OF PARADISE

Originator — Isaiah Lower

Group — Gandavensis

Stock from Wilmore; Flanagan

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth rosy pink (118-11) thickly splashed and feathered with Lincoln red (88-11), with a lemon-yellow throat penciled with crimson-carmine. The segments are pointed, and the whole spike shows strong *Gladiolus oppositiflorus* characters.

Season — Mid-season; 82 days.

Spike — Rather dwarf (60 cm.), erect, a fair number of blooms (15), not branched.

Habit — Erect, dwarf, spreading.

Growth — Medium poor; plant furnished with medium narrow foliage.

Corms — Medium size; cormels, freely produced.

BIRD OF PARADISE (Kunderd). See Gaiety.

BIZARRE

Originator — Christy

Group —

Stock from Christy

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight

and narrower. Stamen filaments pinkish; anthers lavender. Perianth lilacy white (7-IV) with faint splashes and feathering of Tyrian rose (155-I) and large blotches of Tyrian rose (155-IV) on lower lip. The blotch has a lemon-yellow line running through it.

Season — Mid-August; 88 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (19 on main, 4 on secondary).

Habit — Erect, medium tall.

Growth — Medium vigorous; plant furnished with medium poor foliage.

Corms — Medium size; cormels, prolific.

BLACK BEAUTY

Originator — Stewart, 1911. Reg. A.

G. S., 1914

Group —

Stock from Stewart

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments with red tips; anthers violet. Perianth carmine-red (113-IV) with French purple medial lines and lighter streaking on each side. A rich, deep color.

Season — Mid-August.

Spike — Medium tall (78 cm.), erect, blooms freely (15). Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Good to medium; plant well furnished with medium broad leaves.

Corms — Medium sized; cormels, few.

BLACK'S SEEDLING H-2

Originator — Black

Group —

Stock from Black

Bloom — Medium size (9 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellowish white; anthers reddish violet. Perianth canary-yellow (17-I), the upper segment suffused or tinted with rose, the two lower segments with old carmine-red blotches. Substance good. Blooms are of good form. This variety differs from Lemon Drop only in that the upper segments are rose-tinted, which tinting seems a blemish.

Season — Mid-August to late August; 92 to 95 days.

Spike — Medium tall (89 cm.), erect, a fair number of blooms (17). Two spikes frequently borne per corm.

Habit — Erect, medium tall, rather spreading.

Growth — Excellent; plant well furnished with broad leaves.

Corms — Large; cormels, large.

BLANCHE

Originator ———. Intro. 1899

Group —

Stock from Dreer

Bloom — Medium size (9.5 cm.). Tube straight, stout, short. Segments nearly equal, connivent; the upper horizontal and narrow, the lower reflexed, narrow, and pointed. Stamen filaments lilacy white. Perianth lilacy white, penciled with Tyrian rose (155-IV) on the throat. Medium good substance.

Season — Late August; 106 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (16), not branched. Two spikes frequently occur per corm.

Habit — Erect, medium height, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.



FIG. 43. BLANCHE

BLOOD SPOT*Originator* —*Group* —*Stock from* Wright

Bloom — Medium size (8 cm.). Tube slightly curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers reddish violet. Perianth antique red (104-I) thickly feathered and flaked with near dull purple lake (170-IV). Lower segments with lemon-yellow throat blotched and bordered by French purple (161-IV). A dull color. Eight blooms open at one time.

Season — Mid-season; 89 days.

Spike — Tall (115 cm.), erect, a large number of blooms (25), two branches.

Habit — Erect, tall, spreading.

Growth — Very vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

BLOTCHED ROSELLA*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Medium size (9.5 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and narrow, the lower slightly reflexed and broad. Stamen filaments pinkish; anthers lavender. Perianth deep carmine (112-I), with a large carmine-purple (156-III) blotch on a light yellow-green throat. Color is excellent — bright and showy. Bloom smaller than that of Rosella, and not much like that variety.

Season — Early; 81 days.

Spike — Medium tall (74 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Fairly vigorous; plant medium well furnished with broad leaves.

Corms — Large; cormels, few but large.

BLUE 4 X*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Medium size (7 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers red-violet. Perianth solferino-red (157-I), with amber-white (12-I) throat penciled and dotted with French purple (161-IV). A peculiar color.

Season — Mid-season; 93 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

BLUE JAY (Childs). See Baron Joseph Hulot.

BLUE JAY (Groff)*Originator* — Groff, 1904*Group* — Lemoinei*Stock from* Christy and others

Synonym — See Baron Joseph Hulot.

Bloom — Medium size (8 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments bluish white; anthers blue-violet. Perianth lobelia blue (205-I) splashed with deeper lobelia blue (205-IV). Lemon-yellow throat blotched with rich pansy violet (191-IV). Color is not quite so clear as it should be. Bloom compact and of medium good substance. The variety Baron Joseph Hulot is frequently given as a synonym, but Blue Jay is distinctly bluish in color, while Baron Joseph Hulot is a velvety purple.

Season — Mid-season; 103 days.

Spike — Medium tall (83 cm.), erect, a fair number of blooms (13).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, medium few.

BOSTON

Originator — Childs. Reg. A. G. S.,

1914

Group —

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white with red tips; anthers violet. Perianth scarlet (85-IV), with white throat dotted and intermixed with Tyrian rose (155-I) and darker. Bloom rather loose and substance medium good.

Season — Latter part of August; 103 days.

Spike — Medium short (60 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few or none.

BOUQUET D'OR

Originator — Stewart. Intro. 1911

Group —

Stock from Stewart

Bloom — Medium size (8 cm.). Tube curved, slender, short. Segments equal, connivent; the upper reflexed and broad, the lower reflexed and broad. Stamen filaments white; styles yellowish white. Perianth cream tinted rosy pink (118), the lower segments yellow-green with carmine-red (113-IV) blotch.

Season — Mid-August; 94 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms.

Habit — Erect, medium height, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

BRENCHLEYENSIS

Originator — Unknown. Intro. Youell

Group — Gandavensis

Stock from Umpleby

Bloom — Small (7 cm.). Tube almost straight, slender, long. Segments unequal, connivent; the upper reflexed and narrow, the lower reflexed and often broader. Stamen filaments reddish white; anthers violet. Perianth scarlet (87-IV), segments feathered darker, throat yellow-green marked with scarlet with a French purple medial line. Color bright. One of the oldest, but ever a favorite landscape variety. Eight blooms open at one time.

Season — Mid-season to late; 106 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (18), branched. Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

BRIGHTNESS

Originator — Kelway. Intro. 1909

Group — July Flowering

Stock from Kelway

Bloom — Medium large (9-11 cm.). Tube curved, medium slender, medium long. Segments nearly equal, connivent; the upper narrower than the lower, and the edges of both upper and lower segments reflexed. Stamen filaments white with red tips; anthers violet. Perianth scarlet (87-IV) with a sulfury white throat spotted and penciled with scarlet. Bloom possesses medium good substance; three open at one time. Seems a good cut flower because of its straight spike and clear colors.

Season — Early August; 80 days.

Spike — Medium tall (73 cm.), very erect, a fair number of blooms (14). Two spikes per corm.

Habit — Very erect, medium tall, medium compact.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Large; cormels, few.

BRITANNIA

Originator — Kelway. Intro. 1906

Group — Childsii

Stock from Kelway

Bloom — Large (10 cm.). Tube curved, slender, long. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and as broad as the upper. Stamen filaments pink; styles pink. Perianth Lincoln red (88-III) with a blood-red-and-white-speckled throat.

Season — Mid-August.

Spike — Tall (120 cm.), erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms —

(Described by George J. Burt.)

BURCHETT NO. 389

Originator — Burchett

Group —

Stock from Burchett

Bloom — Medium size (8-9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed segment. Stamen filaments white; anthers yellow, with violet suture lines. Perianth rose-pink (brighter than 118-IV), with lemon-yellow throat and large penciled blotch of carmine. Good color and substance.

Season — Late August; 95 days.

Spike — Tall (118 cm.), erect, blooms freely (25 on main, 12 and 13 on secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

BURREL

Originator — Woodruff. Reg. A. G. S., 1914, Black

Group —

Stock from Woodruff

Synonym — Napoleon of Darling and Beahan.

Bloom — Medium size (9 cm.). Tube nearly straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth cherry red (91-I), with blood red (93-IV) intermixed blotch bordered by yellow-green. A slight feathering of slate in edges of the segments. Compact blooms of good substance, arranged well on the spike.

Season — Early August; 83 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, medium tall, spreading.

Growth — Extra vigorous; plant well furnished with broad, though somewhat drooping, leaves.

Corms — Medium large; cormels, prolific.

BUSTER BROWN

Originator — Auten

Group — *Gladiolus dracocephalus* hybrid

Stock from Auten

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments dull gray; anthers red-violet. Perianth amber-white (12-1) thickly speckled and flecked with currant red (115-IV), throat lemon-yellow. A very peculiar color. Much resembles its parent, *Gladiolus dracocephalus*. A good shape. Five blooms open at one time.

Season — Mid-season; 97 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (12), two branches.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, prolific.

CALIFORNIA³

Originator — Cowee, 1907. Reg. A.

G. S., 1914

Group —

Stock from Cowee

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments violet-rose; anthers violet. Perianth light Tyrian rose (155) marked with a bit deeper Tyrian rose (155-1), with an amber-white throat nearly covered by large areas of Tyrian rose dots. The size and color are acceptable.

Season — August; 96 days.

Spike — Very tall (115 cm.), drooping, a fair number of blooms (15 on the main, 11 and 12 on two secondaries); branches are badly curved.

Habit — Drooping, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Small; cormels, few.

CANADA. See Meadowvale.

CANARY BIRD

Originator — Childs. Reg. A. G. S., 1914

Group — Gandavensis

Stock from Childs

Bloom — Medium size (8-10 cm.). Tube curved, rather slender, rather long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellowish; anthers pale lilac. Perianth lemon-yellow (21-1), the two lower inferior segments a deeper lemon-yellow (21-11), a little narrower than the other segments. A slight suffusion of rose is found in the perianth segments. A dainty bloom of medium substance. For use in landscape, the colors combine well with Baron Joseph Hulot.

Season — Mid-season to late; 96 to 100 days.

Spike — Tall (110 cm.), erect, a large number of blooms (30), often two branches.

Habit — Erect, tall, spreading.

Growth — Rather vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium sized; cormels, few.

CANDIDUM

Originator — Austin. Reg. A. G. S., 1914

Group — Gandavensis

Stock from Austin

Bloom — Large (11 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper broad with reflexed edges, the lower reflexed and narrower. Stamen filaments pure white; anthers delicate lavender. Perianth lilacy white (7-1) with faintest tinge of pale yellow-green on the lower lip. A slight tinge of carmine feathering develops as the bloom fades. There is deep carmine at the base of the throat. A delicate color. Feathering develops when the variety is forced.

Season — Mid-August; 89 to 95 days. Forces in about 112 days.

Spike — Tall (101 cm.), erect, blooms freely (21 on main, 8 and 11 on two secondaries).

Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium wide leaves.

Corms — Large; cormels, prolific.

³ Another California was introduced by Burbank in 1890.

CANICULE*Originator* — Souchet - Vilmorin.

Intro. 1904

Group — Gandavensis*Stock from* Vaughan

Bloom — Large (10 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers flesh color with violet sutures. Perianth scarlet (87-III) with amber-white (12-1) throat. A good color. Compact bloom of good substance. Five blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (115 cm.), erect, a fair number of blooms (16), one branch. Two spikes per corm.

Habit — Drooping, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

CAPRICE⁴*Originator* — Burchett*Group* —*Stock from* Burchett

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments nearly equal, connivent; the upper horizontal and broader than the lower straight ones. Stamen filaments pink; anthers pinkish lavender. Perianth violet-rose (154-IV) with a crimson-red (114-IV) penciled blotch and a slight dash of yellow-green on the medial line. Good substance.

Season — Mid-season, early to mid-August; 82 to 85 days.

Spike — Tall (97 cm.), erect, free-blooming (20 on main, 13 on secondary), one branch. Two spikes often occur per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

CAPTAIN C. B. TANNER*Originator* — Childs. Reg. A. G. S., 1914*Group* — Childsii*Stock from* Childs

Bloom — Large (11 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper with tips reflexed, the lower broader and reflexed. Stamen filaments white with pink tips; anthers dark blue-violet. Perianth Rose Neyron red (119-II), sparsely marked with crimson. Splashes on segments seem blemishes to an otherwise good pink.

Season — Early, late July; 69 to 70 days.

Spike — Medium short (60 cm.), erect, a fair number of blooms (12), not branched. Three spikes borne per corm.

Habit — Erect, dwarf, compact.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves

Corms — Large; cormels, prolific, large.

CAPTAIN W. L. REEVES*Originator* — Kelway. Intro. 1910*Group* — Kelwayi*Stock from* Kelway

Bloom — Large (13 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broader than the lower reflexed segment. Stamen filaments pinkish; anthers violet. Perianth scarlet (87-IV), throat yellow-green penciled with dark scarlet. Medial lines slightly lighter in color. Color clear, and bloom possesses good substance, is compact and well open.

Season — Mid-season; 80 to 85 days.

Spike — Medium tall (93 cm.), erect, a fair number of blooms (15), two branches. Two spikes borne per corm.

Habit — Erect, medium height, medium spreading.

⁴There is also a Caprice from Kelway, and another from Vilmorin.

Growth — Vigorous; plant well furnished with medium broad leaves.
Corms — Large; cormels, few, small.

CAPTIVATION⁵

Originator — Miller

Group —

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower (often the lower segment is the broader). Stamen filaments pinkish; anthers lavender. Perianth creamy white (10-IV), with amber-white (12-IV) throat marked with rosy magenta (169-II). An excellent cream-colored bloom. A compact bloom of medium poor substance. Eight blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (90 cm.), extremely erect, a fair number of blooms (18), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

CARDINAL (Childs)⁶

Originator — Childs. Intro. 1904

Group — Childsii

Stock from Childs

Bloom — Medium size (9.5 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments reddish with white tips; anthers red-violet. Perianth scarlet (87-IV) with geranium red (III-I) finely intermixed blotches on lemon-yellow throat. Bloom well open, of a bright showy color.

Season — Late, September; 120 days.

Spike — Medium height (76 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with rather broad leaves.

Corms — Medium size; cormels, medium prolific, small.

CARDINAL (May)

Originator — May

Group —

Stock from May

Synonym — 'May's Cardinal.

Bloom — Medium size (8 cm.). Tube nearly straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower with reflexed edges and narrower. Stamen filaments with reddish tips; anthers red-violet. Perianth purple-garnet (165-II) with amber-white (12-I) throat stippled with purple-garnet (165-I). A good deep color. A compact bloom of good substance.

Season — Early; 76 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

CARDINAL 5 X. See Great Cardinal.**CARDISAN**

Originator — Austin

Group —

Stock from Austin

Bloom — Very large (12 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish spotted; anthers almost black. Perianth much deeper than blood red (93-IV), the throat nearly black. Color could be described as a very deep wine color.

Season — Mid-season, mid-August; 93 to 100 days.

⁵ There is also a Captivation from Kelway.

⁶ There is a Lemoine and a Vilmorin variety by this name.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (15).

Habit — Erect, rather tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, medium prolific.

CAVERS NO. 29

Originator — Cavers

Group —

Stock from Cavers

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower nearly straight and narrower. Stamen filaments white; anthers violet. Perianth Naples yellow (29-III) with large carmine-purple (156-IV) blotches. A slight rose suffusion is usually present in the segments. A good shape and a dainty color.

Season — Early September; 106 days.

Spike — Tall (103 cm.), erect, few blooms (6), often branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant rather well furnished with medium broad leaves.

Corms — Medium sized; cormels, prolific.

CECIL

Originator — May

Group —

Stock from May

Bloom — Small (7 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink. Perianth light earthamin red (88-I) with lemon-yellow throat blotched with blood red (93-IV). A compact bloom of medium substance. Seven blooms open at one time.

Season — Rather late; 110 days.

Spike — Medium short (60 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

CEDAR ACRES MAUVE. See Scarsdale.

C. E. J. ESDALE

Originator — Kelway. Intro. 1905

Group — Kelwayi

Stock from Kelway

Bloom — Medium size (9 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments red; anthers violet. Perianth reddish purple (161-IV) with pale yellow-green lines as the only markings. The edges of the segments are darkest. Color good, and flower has a very velvety appearance. Six blooms open at one time.

Season — Mid-season, mid-August; 89 days.

Spike — Tall, erect, blooms freely, with two secondary spikes.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

CELLINI

Originator — Kelway

Group —

Stock from Kelway

Bloom — Medium size. Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed. Stamen filaments pink; styles lighter pink. Perianth vermilion-red (87-III), Tyrian rose (155) medial line on lower segments, lighter on each side. Tint of this lighter color along edge of all segments and on the back.

Season — August.

Spike — Medium short, erect, a fair number of blooms.

Habit — Erect, medium tall, compact.

Growth — Medium vigorous; plant well furnished with broad leaves.

Corms —

(Described by George J. Burt.)

CERES

Originator — Souchet-Vilmorin. Advertised 1877-78

Group — Gandavensis

Stock from Childs

Bloom — Medium size (8 cm.). Tube straight, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white with pink bases; anthers yellowish brown with violet sutures. Perianth lilacy white (7-1), with a deep lemon-yellow throat blotched with Tyrian rose (155-1V). Segments slightly feathered with rose. Bloom is compact, of medium good substance, attractive, and bright.

Season — Mid-season to late, early September; 102 to 110 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (15), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

CHALICE

Originator — Umpleby

Group — Strong *Gladiolus oppositiflorus* characters

Stock from Umpleby

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower much reflexed and narrower. Stamen filaments pinkish; anthers lavender. Perianth lilacy white (7-1), often pure white with a faint dash of Tyrian rose (155-II) on the lower segments, and the base of the lower segments marked with crimson-carmine (159-1). Upper segments often strongly feathered with Tyrian rose. Segments are pointed and of good substance. Blooms have poor arrangement and poor shape.

Season — Mid-August; 93 to 100 days.

Spike — Very tall (130 cm.), erect, blooms freely (24).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Large; cormels, medium prolific.

CHAMAELEON

Originator — Pfitzer. Intro. 1912

Group — Gandavensis

Stock from Pfitzer

Bloom — Large (11 cm.). Tube almost straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal, and the segments variously embossed in different parts, the lower straight. Stamen filaments pink; anthers violet. Perianth, three outer segments madder red fading into lighter shrimp pink (75); lower lip yellow-green, penciled with lilac-rose; back of segments with violet-tinged medial lines. Flower very bright in color. Eight blooms open at one time.

Season — Medium late; 101 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific, small.

CHAMONT

Originator — Childs

Group — Gandavensis

Stock from Childs

Bloom — Small (7 cm.). Tube nearly straight, slender, short. Segments unequal, connivent; the upper longer, horizontal, and rather narrow, the lower reflexed and

narrower. Stamen filaments pink; styles nearly white. Perianth violet-rose (154-1) feathered with Tyrian rose, with lemon-yellow throat penciled with Tyrian rose. The flowers, though small, form a compact spike. Mr. Burt, in 1911, noted that the flowers are frequently doubled and possess nine segments. Ten blooms open at one time.

Season — Medium late; 111 days.

Spike — Tall (75 cm.), erect, blooms freely, not branched.

Habit — Erect, tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, medium prolific.

CHARITY

Originator — White

Group —

Stock from White

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper hooded and rather narrow, the lower reflexed and broad. Stamen filaments lilac; anthers violet. Perianth lilacy white, thickly feathered with Tyrian rose (155-111), lemon-yellow throat slightly marked with Tyrian rose. A rather compact bloom of good substance. Would be better if the featherings of Tyrian rose on the edges of the segments were absent.

Season — Late August; 89 to 95 days.

Spike — Medium (65 cm.), erect, a fair number of blooms (14). Two spikes frequently borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, medium prolific.

CHARLES L. HUTCHINSON

Originator — Van Fleet

Group — Princeps seedling

Stock from Vaughan

Bloom — Large (10-11 cm.). Tube curved, stout, short. Segments nearly equal, connivent; the upper reflexed and narrower than the lower reflexed; often the upper is the broader. Stamen filaments red; styles red. Perianth cherry red (91-14) feathered with dark red, with light blood-red-and-yellow-speckled throat.

Season — Late; 110 days.

Spike — Medium tall (85 cm.), erect, often curved, a fair number of blooms (12).

Habit — Erect, tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Small; cormels, few.

CHARLES MARTEL

Originator —

Group — Lemoinei

Stock from Childs

Bloom — Small. Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed and narrow. Perianth lilac-rose, the lower segment with primrose yellow lip blotched with ox blood red. Back of segments splashed.

Season — August 9, 1911.

Spike — Medium short, erect, a fair number of blooms.

Habit — Erect, dwarf, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms —

(Described by George J. Burt.)

CHARLOTTE. See Mary Fennel.

CHARLOTTE PFITZER*Originator* — Pfitzer. Intro. 1913*Group* — Gandavensis*Stock* from Pfitzer

Bloom — Medium size (9 cm.). Tube curved, straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish white; anthers lavender. Perianth pale lilac-rose (178-I), darker at edges of segments. Lower lip lined with single dash of amaranth-red (168-IV). A good color. About same color as that of America. Blooms face various directions. A medium loose bloom of medium substance. Eight blooms open at one time.

Season — Mid-season; 90 days.*Spike* — Tall (115 cm.), erect, blooms freely (20). Two spikes borne per corm.*Habit* — Rather drooping, tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium large; cormels, few.**CHARMER⁷***Originator* — Miller*Group* — Childsii; Lemoinei*Stock* from Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth violet-rose (154-I), deeper at edges, and blotched with Tyrian rose (155-IV), deeper at medial line. A compact, round bloom of medium good substance. Blooms are spaced far apart.

Season — Mid-season; 83 days.*Spike* — Tall (105 cm.), erect, a fair number of blooms (15), branched.*Habit* — Erect, medium tall, very spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, few.**CHEERFUL***Originator* —*Group* —*Stock* from Woodruff

Bloom — Medium size (8 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers red-violet. Perianth deep rose-pink (120-IV), with amber-white (12-I) throat marked with a lined blotch of French purple (161-IV). Compact bloom of good shape and medium good substance. Well-arranged blooms. Five blooms open at one time.

Season — Mid-season; 89 days.*Spike* — Medium tall (90 cm.), erect, a fair number of blooms (18).*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, prolific.**CHERRY DIAMOND***Originator* — Woodruff*Group* —*Stock* from Woodruff

Bloom — Medium size (8 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth carmine lake (121-III) with whitish medial lines, each lower segment blotched with Tyrian rose (155-IV) bordered by lemon-yellow. Blotch not of a decided shape. A compact bloom of medium substance. Blooms rather far apart.

Season — Called "early" by Woodruff; 82 days.*Spike* — Medium tall (75 cm.), erect, a fair number of blooms (15).*Habit* — Erect, medium tall, rather compact.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, prolific.⁷There is also a variety by this name from Groff.

CHERRY RED*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender. Perianth carmine lake (121-II) with lemon-yellow (21-II) throat blotched with deep carmine-purple (150-IV). An attractive color. "Wilts too readily," says Auten.

Season — Mid-August; 90 days.

Spike — Medium tall (91 cm.), erect, a fair number of blooms (14 on main, with 9 and 6 on two secondaries). Often two spikes per corm.

Habit — Erect, rather tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, small, prolific.

CHERRY RED, WHITE CENTER*Originator* — Auten*Group* —*Stock from* Auten

Bloom — Small (6.5 cm.). Tube nearly straight, stout, short. Segments unequal, connivent; the upper horizontal and narrow with edges slightly ruffled, the lower straight and broad. Stamen filaments white; anthers violet. Perianth cherry red (91-IV), the edges darker; the throat amber-white (12-III) finely flecked and dotted with deep cherry red. Dotting is fine and attractive.

Season — Mid-August; 85 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (16 on main, 7 on secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Large; cormels, small but abundant.

CHICAGO WHITE*Originator* — Kunderd. Reg. A. G. S., 1914*Group* — Gandavensis*Stock from* Vaughan

Bloom — Medium size (8 cm.). Tube nearly straight, slender, medium long. Segments nearly equal, connivent; the upper horizontal and broad, the lower slightly reflexed and slightly narrower. Stamen filaments white; anthers violet. Perianth pure white, medial lines of amber-white, and lines of solferino-red (157-I) on the lower segments at the base of the throat. The lines are very fine and inconspicuous, making this a nearly pure white variety. The blooms are often rather small. It should be called an excellent commercial variety, as well as useful for the landscape.

Season — Mid-August. Gage calls it the earliest white, as it blooms before July 18. Forces in 107 days; out of doors 75 to 80 days.

Spike — Medium tall (96 cm.), erect, a fair number of blooms (17 on main, 9 on secondary), branched. Two spikes frequently borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium in size and number; cormels, few and small.

CHIEFTAIN*Originator* — Burchett*Group* —*Stock from* Burchett

Bloom — Large (10 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments red; anthers lavender. Perianth scarlet (87-I), with large French purple (161-IV) blotches on the lower segments. The color of the blotch is really more bright and more reddish than French purple, and is very shiny and attractive. Substance excellent.

Season — Mid-August to late August; 85 to 90 days.

- Spike* — Very tall (135 cm.), erect, blooms freely (22 on main spike, 8 on secondary), a very strong spike.
Habit — Erect, very tall, compact.
Growth — Vigorous; plant unusually well furnished with broad leaves.
Corms — Large; cormels, prolific and large.

CHOCOLATE DROP

Originator — Stewart. Intro. 1912.
Reg. A. G. S., 1914
Group —
Stock from Stewart

- Bloom* — Medium size (8 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers reddish slate. Perianth near reddish lilac (179-I), becoming bluer as it ages, with a purple-garnet (165-II) blotch terminating in a nearly white medial line. The color seems too dingy. The bloom is compact, and the substance excellent.
Season — Late August; 89 to 95 days.
Spike — Medium tall (70 cm.), erect, a fair number of blooms (12), not branched.
Habit — Erect, medium tall, spreading.
Growth — Vigorous; plant well furnished with medium broad leaves.
Corms — Medium size; cormels, prolific.

CHRISTMAS CANDY

Originator — White
Group — Princes X Lemoinei
Stock from White

- Bloom* — Medium large (9-10 cm.). Tube nearly straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Perianth pure white with slight markings of light crimson-carmine, and a deep crimson-carmine (159-IV) veined throat. The flower possesses good substance, and is a good shape.
Season — Early September; 108 days.
Spike — Medium tall (93 cm.), erect, a fair number of blooms (17).
Habit — Drooping, tall, spreading.
Growth — Vigorous; plant well furnished with drooping, medium broad leaves.
Corms — Medium size; cormels, few or none.

CLARICE

Originator — Kunderd. Reg. A. G. S.,
 1914
Group —
Stock from Chamberlain & Gage

- Bloom* — Large (10-11 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth Rose Neyron red (119-I), splashed and feathered with carmine lake (121-IV), medial line of blotch deep carmine lake (121-IV). Flowers well opened, of medium substance. Four or five open at once.
Season — Mid-August; 97 days.
Spike — Medium tall (82 cm.), erect, a fair number of blooms (12), not branched.
Habit — Erect, medium tall, spreading.
Growth — Vigorous; plant well furnished with medium broad leaves.
Corms — Medium size; cormels, prolific.

COBLENTZ NO. 003

Originator — Coblentz
Group —
Stock from Coblentz

- Bloom* — Large (13 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal with crinkled edges, not regular, and broader, the lower much reflexed. Stamen filaments pinkish; anthers violet. Perianth very light scarlet, blending to bright rose (128-IV), throat striped with solferino-red (157-I). A good pink bloom of good substance on a compact spike. Perhaps not a commercial color.

Season — Mid-August to late August; 71 to 75 days.

Spike — Tall (122 cm.), drooping (1913), blooms freely (21 on main, 8 and 12 on secondaries). Often three spikes borne per corm.

Habit — Drooping, tall, spreading.

Growth — Very vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, prolific.

COBLENTZ NO. 304. See Mrs. Scott Durand.

COBLENTZ NO. 309

Originator — Coblentz

Group —

Stock from Coblentz

Bloom — Small (7 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments white, red tips; anthers red-violet. Perianth cherry red (91-II), marked a little darker, lower segments with large blood red (93-IV) blotch, white medial lines. A good color.

Season — Late August; 97 to 110 days.

Spike — Short (58 cm.), erect, a fair number of blooms (11), not branched.

Habit — Erect, dwarf, compact.

Growth — Medium vigorous; plant medium well furnished with narrow leaves.

Corms — Small; cormels, few.

COBLENTZ NO. 312. See Velvet King.

COBLENTZ NO. 400

Originator — Coblentz

Group —

Stock from Coblentz

Bloom — Large (10 cm.). Tube almost straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the

lower straight and also broad. Stamen filaments white; anthers pale lavender. Perianth amber-white (12-I) with large cardinal-red (112-IV) blotch, slight suffusion of rose on upper segments. Buds rather yellow. Resembles La Luna, but



FIG. 44. COBLENTZ NO. 400

the blotch is brighter in color than in that variety. The blotch in La Luna is old dark blood red and is more circular in outline.

Season — Mid-August to late; 89 days.

Spike — Tall (111 cm.), erect, a fair number of blooms (16 on main, 13 and 12 on secondaries).

Habit — Erect, tall, spreading.

Growth — Very vigorous; plant well furnished with broad leaves. Growth superior to that of La Luna.

Corms — Large; cormels, prolific.

COLONEL A. C. SLOCUM

Originator —

Group — Lemoinei hybrid

Stock from Woodruff

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers red-violet. Perianth geranium lake (89-11) with white medial lines, amber-white to lemon-yellow throat blotched with French purple (161-IV). Good color. A compact bloom of medium good substance. Five blooms open at one time.

Season — Mid-season; 86 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant rather poorly furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

COLUMBIA

Originator — Childs. Reg. A. G. S.,
1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube straight, medium stout, medium short. Segments unequal, connivent; the upper horizontal and broader than the lower reflexed segment. Stamen filaments reddish; anthers violet. Perianth Lincoln red (88-1) with crimson-carmine lines in the throat. Bloom rather loose and of good substance. The color is described by Childs as light orange-scarlet.

Season — Mid-season, late August; 78 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (9), not branched. Two spikes frequently borne per corm.

Habit — Medium tall, spreading.

Growth — Rather vigorous; plant medium well furnished with medium narrow foliage.

Corms — Medium size; cormels, prolific.

CONTRAST

Originator — Childs. Reg. A. G. S.,
1914

Group — Gandavensis

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with violet sutures. Perianth intense scarlet (87-IV), with a large light lemon-yellow throat; no markings. A compact bloom of excellent substance. Good contrast in color. Five blooms open at one time.

Season — Mid-season, late August; 88 to 95 days.

Spike — Medium short (67 cm.), erect, a fair number of blooms (20).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with rather broad leaves.

Corms — Medium size; cormels, few.

CORA*Originator* — White*Group* —*Stock from* White

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth lilacy white (7-1) with a blotch lighter than Tyrian rose (155) cut by a lemon-yellow medial line, and with a deep lemon-yellow throat. A rather loose bloom of good substance. Blooms well arranged on the spike, rather far apart. Buds are slightly yellow.

Season — Mid-season to late, early August; 110 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with rather narrow leaves.

Corms — Medium size; cormels, rather prolific.

CORNISHMAN*Originator* — Kelway. Intro. 1898*Group* — Kelwayi*Stock from* Kelway

Bloom — Medium large (8-10 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper broader with edges decidedly reflexed, the lower slightly reflexed. Stamen filaments pinkish; anthers violet. Perianth a tint lighter than Lincoln red (88-I) splashed and feathered with darker Lincoln red (88-IV), the lower segments have a large canary-yellow spot penciled with lilac-purple (160-III). The bloom has an objectionable closed appearance; the color is not quite clear enough; and the substance is not the best.

Season — In 1911, it bloomed on August 9; in 1912, on August 8; in 1913, on August 2. Mid-season; 80 days.

Spike — Medium tall (76 cm.), erect, a fair number of blooms (13), branched. Often two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad foliage.

Corms — Large; cormels, large though few.

COUNTESS AMY*Originator* — Kelway. Intro. 1899*Group* — Kelwayi*Stock from* Kelway

Bloom — Medium size (9 cm.). Tube straight, medium slender, medium long. Segments nearly equal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments white; anthers violet. Perianth lilac-rose (152-II) thickly splashed with carmine lake (121-IV), with an amber-white (12-1) throat. The splashing does not seem so pronounced some seasons. The color is rather contrasting, the shape excellent, and the flower has a charming attraction.

Season — Mid-season, second week in August; 82 to 86 days.

Spike — Medium tall (94 cm.), erect, branched, a fair number of blooms (13 on main, 6 on a branch).

Habit — Erect, medium tall, spreading.

Growth — Very good; plant well furnished with broad leaves.

Corms — Large; cormels, few, large.

COUNTESS OF LEICESTER*Originator* — Kelway. Intro. 1908*Group* — July Flowering*Stock from* Kelway

Bloom — Extremely large (18 cm., or 7 in.). Tube straight, medium slender, medium short. Segments unequal, connivent; the upper horizontal with reflexed edges and very broad, the lower straight and narrower. Stamen filaments white, salmon-pink tips; anthers salmon-pink. Perianth Lincoln red (88-III); speckled yellow-green throat. Bloom well open, of good color, and of rather good substance for so large a bloom.

Season — Early, July 29; 68 to 70 days.

Spike — Tall (107 cm.), erect, but very much curved, a fair number of blooms (16 on main, 5 on secondary).

Habit — Rather drooping, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves.

Corms — Large; cormels, large.

COUNTESS OF SUFFOLK

Originator — Kelway

Group — July Flowering

Stock from Kelway

Bloom — Medium size (8 cm.). Tube slightly curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and narrower than the lower broad reflexed segment. Stamen filaments white, rose tips; anthers violet. Stigmas lavender. Perianth deep rose-pink (120-III), very thickly feathered with carmine (116-II); outer segments more thickly marked than the inner; primrose yellow (19-I) throat; a rosy white medial line on each segment. Color is not clear.

Season — Mid-season, early August; 80 to 90 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Not vigorous; plant with medium poor foliage, narrow and rather drooping.

Corms — Large; cormels, few and small.

CRACKERJACK

Originator — Cowee, 1903. Reg. A. G. S., 1914. Cowee

Group — Lemoinei

Stock from Cowee

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments vermilion; anthers violet. Perianth velvety carmine-red (113-IV and deeper); throat yellow-green irregularly marked with amaranth-red (168-IV), often splashed and feathered with drab. Good shape and color. Velvety appearance.

Season — Mid-season; 87 to 92 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

CREAM PINK. See Faerie.

CRIMSON LAKE

Originator — Woodruff

Group — Lemoinei

Stock from Woodruff

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth brighter than carmine-purple (156-IV), blotched with purple-garnet (165-IV). Colors unusually bright and shining. A rather loose, wide-open bloom of good substance.

Season — Rather early; 78 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

CRIMSON RED NO. 8

Originator — Banning. Intro. Perkins-King Company

Group —

Stock from Perkins-King Company

Bloom — Medium size (8 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth crimson-carmine (159-III),

lighter in center, blotched with deeper crimson-carmine on nearly pure white throat. Segments possess lighter medial lines. Compact bloom of medium substance.

Season — Mid-season; 90 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15), not branched.

Habit — Erect, medium tall, rather compact.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

CRYSTAL WHITE

Originator — Baer

Group —

Stock from Baer

Synonym — Formerly called Paper White.

Bloom — Medium size (8 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers bluish. Perianth white, blotched with Tyrian rose (155-IV). Compact bloom of good substance. Five blooms open at one time.

Season — August 8, 1915.

Spike — Tall (120 cm.), erect, a large number of blooms (19-21).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

CYNOSURE

Originator — Miller

Group — Childsii

Stock from Childs

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth near lilac-rose (152-I), flecked in segments and blotched with French purple (161-IV). A good deep rose. A compact bloom of medium good substance. Five blooms open at one time.

Season — Mid-season; 90 days.

Spike — Tall (125 cm.), erect, blooms freely (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

DAISY RAND

Originator — Kunderd. Reg. A. G. S.,
1914

Group —

Stock from Chamberlain & Gage

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower nearly straight. Stamen filaments pinkish; anthers violet. Perianth "soft rose-pink, splashed with a darker tone, the petals bearing a small patch of pale buff penciled with rosy pink," say Chamberlain & Gage. Excellent shape and a waxy looking bloom of excellent substance.

Season — Early August.

Spike — Medium tall (68 cm.), erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Fairly vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

DANDY

Originator —

Group — Lemoinei

Stock from Childs

Bloom — Small (6.5 cm.). Tube straight, stout, and very short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth French purple (161-IV),

an area of yellowish sap green (265-III) on each segment; five of the segments blotched with vinous purple (171-III). Colors rich and contrasting; blooms compact and of unusual substance.

Season — Mid-August.

Spike — Tall (85 cm.), erect, curved, a fair number of blooms (15), branched.

Habit — Erect, medium height, spreading.

Growth — Vigorous; plant well furnished with long, broad leaves.

Corms — Medium size; cormels, few.

DANNECKER

Originator — Pfitzer. Intro. 1914

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (9 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white, blue-violet sutures. Perianth pale lilac (176-I) faintly feathered with lilac and blotched with deeper than lilac-purple (160-IV), the blotch margined with bluish. A good color. An excellent compact form. Good substance. Seven blooms open at one time.

Season — Mid-season; 90 days.

Spike — Tall (115 cm.), erect, blooms freely (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

DARK CRIMSON

Originator — Auten

Group —

Stock from Auten

Bloom — Large (12 cm.). Tube long, curved, slender. Segments unequal, connivent; the upper horizontal and broader than the lower segment. Stamen filaments dark red; anthers red with violet sutures. Perianth cochineal red (83-II), with fiery red throat and deeper medial line. Markings not conspicuous. Excellent substance. Well-open bloom. Color extremely rich and clear.

Season — Early; 68 days.

Spike — Tall (125 cm.), erect, tip of spike often curved, branched, a fair number of blooms (13 on main, 7 on a branch). Two or three spikes per corm.

Habit — Erect, medium height, compact.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Medium large; cormels, very prolific.

DARKNESS

Originator — Kelway. Intro. 1908

Group — Kelwayi

Stock from Kelway

Bloom — Small (7 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal with two upper inferior segments laterally incurved, the upper exterior reflexed; the lower broader and reflexed. Stamen filaments white, red tips; anthers lilac with violet sutures. Perianth blood red (93-IV) with the back of the segments mottled blood red and white.

Season — Last week in August; 99 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (9), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Large.

DAWN (Tracy)

Originator —

Group —

Stock from Stewart; Tracy

Bloom — Medium size (9 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth salmon-carmine (125-IV), the

outer edges of segments often deeper. Amber-white (12-I) throat penciled with amaranth-red (168-IV). An excellent color, and good arrangement of blooms on spike. Compact bloom of medium good substance. Good keeping quality.

Season — Mid-season; 83 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.



FIG. 45. DECORATION

Spike — Medium tall (100 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

DE CHEVILLE (Stewart). See Lamarck.

DECORATION

Originator — Hoeg. Reg. A. G. S., 1912

Group —
Stock from Hoeg

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments white; anthers white, sutures dark violet. Perianth Lincoln

⁸ There is also a variety of this name originated by Groff.

red (88-IV), becoming lighter toward the base of the throat. There is a yellowish sheen to the lower segments; edges of segments are slightly crinkled. Excellent substance; well open.

Season — Late August; 101 to 105 days.

Spike — Medium tall (91 cm.), erect, a fair number of blooms (17), not branched. Frequently two spikes per corm.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, medium size, prolific.

DELICATISSIMA

Originator — Christy. Seedling of 1903

Group —

Stock from Christy

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments equal, connivent; the upper horizontal and broad, the lower broader. Stamen filaments and styles lilac-white. Perianth lavender-rose, often near lilacy white, feathered with sulfurous-red (160-I) on yellow-green throat. Color very intermixed, not clear, not harmonious.

Season — Mid-August to late August; 99 days.

Spike — Rather tall (70 cm.), erect, a fair number of blooms (15), two branches.

The branches, says Christy, "form a harp-shaped cluster making it one of the most floriferous sorts." Two spikes often occur per corm.

Habit — Erect, medium height, spreading.

Growth — Rather vigorous; plant well furnished with medium broad leaves.

Cormels — Moderately prolific. Christy writes: "Multiplies freely both by division and by the production of cormlets."

DESDEMONE

Originator — Vilmorin

Group —

Stock from Chamberlain & Gage

Bloom — Very large (13 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper reflexed and broader than the reflexed lower segment. Stamen filaments white; anthers lavender-pink. Perianth deep rosy pink (120-IV), with a lilac-purple blotch (160-IV) on a lemon-yellow throat, merging to lilacy white. The color might be described as an ashen hue. The bloom is wide open and of good substance.

Season — Late August; 90 to 100 days.

Spike — Tall (105 cm.), erect, curved, a fair number of blooms (15), branched.

Habit — Erect, tall, compact.

Growth — Good; plant well furnished with very broad leaves.

Corms — Large; cormels, few.

DEUIL DE CARNOT

Originator — Lemoine. Intro. 1894

Group — Lemoinei

Stock from Dreer

Bloom — Medium small. Tube curved, slender, long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments and styles red. Perianth carmine-red (113) streaked with very deep red. Both sides of the throat are speckled with yellow.

Season — September 6, 1911.

Spike — Short, erect, a fair number of blooms.

Habit — Erect, dwarf, spreading.

Growth — Medium vigorous; plant well furnished with narrow leaves.

(Described by George J. Burt.)

DEUIL DE ST. PIERRE

Originator — Lemoine. Intro. 1894

Group — Lemoinei

Stock from Vaughan

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen



FIG. 46. DESDEMONE

equal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments pinkish white; anthers violet. Perianth lilac white (7-1) often

filaments reddish; anthers violet. Perianth violet-lilac (175-IV), blotched with amaranth-red (168-IV) terminated by dash of white. A smoky color. Bloom compact and of medium good substance. Seven blooms open at once.

Season — Mid-season; 90 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (18), branched.

Habit — Rather drooping, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

DICTUM

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (10 cm.). Tube straight, stout, very short. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments white with red tips; anthers violet. Perianth currant red (115-I), with carmine-red (113-IV) intermixed throat. Yellow-green dashes in the lower segments. Each segment appears to be outlined with violet. Well-open bloom of good substance.

Season — Mid-August to late August; 97 days.

Spike — Very tall (122 cm.); erect, blooms abundantly (17), not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad prominently veined leaves.

Corms — Large; cormels, abundant.

DIRECTOR

Originator — Burchett

Group —

Stock from Burchett

Bloom — Medium size (9 cm.).

Tube curved, medium slender, medium long. Segments un-

strongly, sometimes but lightly, feathered with lilac (176-I), with a blotch of amaranth-red (168) on the two lower segments. Good substance and attractive arrangement.

Season — Early to mid-August; 91 to 100 days.

Spike — Medium short (65 cm.), erect, blooms freely (19 on main, 14 and 12 on secondaries).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with broad leaves.

Corms — Large; cormels, large but few.

DR. DOTTER

Originator — Pfitzer. Intro. 1911

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers yellow. Perianth amber-yellow (28-I), lower lip deeper yellow (28-II); a slight feathering of rose often develops in outer segments. A good yellow. A compact bloom. Medium substance. Eight blooms open at one time.

Season — Mid-season; 89 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (16), two branches.

Habit — Rather drooping, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

DR. ERWIN ACKERKNECHT

Originator — Pfitzer. Intro. 1909-1913

Group — Nanceianus

Stock from Pfitzer

Bloom — Large (14 cm.). Tube nearly straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments —; anthers —. Perianth carmine (116-I) thickly splashed with carmine-red (113-I), with a bright lemon-yellow (20-I) throat marked with ox blood red (94-IV). An immense blaze of color. A compact bloom of good substance. Eight blooms open at one time.

Season — Mid-season to late; 103 days.

Spike — Tall (115 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

DR. SELLEW

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Large (10 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth deeper than carmine (116-IV), with a lemon-yellow throat penciled and dotted with French purple (161-IV); a slight feathering of carmine often occurs in the edges of the segments. Rather loose but of excellent substance. Six blooms open at one time. Blooms often face several directions.

Season — Mid-August to late August; 103 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (12).

Habit — Erect, rather tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Medium size; cormels, few.

DR. WILLIAMS

Originator — White

Group — Princeps seedling

Stock from White

Bloom — Large (11 cm.). Tube curved, somewhat twisted, slender. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower.

Stamen filaments pinkish; anthers violet. Perianth Rose Neyron red (119-IV), with white throat marked with lines of crimson-carmine. White says: "Might be called Pink Princeps."

Season — Early September; 110 days.

Spike — Tall (102 cm.), erect, blooms freely (20), not branched. Often three spikes borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

DORENE

Originator — Kunderd. Intro. about 1913. Reg. A. G. S., 1914

Group —

Stock from Chamberlain & Gage

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments lilacy white; anthers lilac. Perianth lilacy white (7-1), often so thickly feathered with mauve-rose that the bloom appears to be mauve-rose. A light throat very sparsely dotted with Tyrian rose (155-II). The compact blooms are of medium substance and are borne erect on the spike. Six to eight blooms open at one time.

Season — Late August; 107 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (10), not branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

DOROTHY BURNHAM

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Large (10 cm.). Tube straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers reddish lilac. Perianth scarlet (87-IV) with a large light lemon-yellow throat, segments often splashed with slate. The blooms are large, well open, and attractive except for the slate markings.

Season — September; 110 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (9), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium large; cormels, medium prolific.

DUKE OF BUCCLEUCH

Originator — Kelway. Intro. 1885

Group — Gandavensis

Stock from Kelway

Bloom — Medium size (8 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper broad with reflexed edges, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth bright rosy scarlet (124-I) slightly feathered with darker rosy scarlet. Throat yellow-green with sparse dottings of Tyrian rose (155-III) and deep pencilings of the same color deep in the throat. Color appears as a dainty, clear salmon-pink.

Season — Mid-August to late August; 80 to 83 days.

Spike — Tall (105 cm.), erect, free blooming (19 on main, 10 and 11 on two secondaries). Two spikes frequently borne per corm.

Habit — Erect, medium height, spreading.

Growth — Vigorous; plant well furnished with broad foliage.

Corms — Large; cormels, few but large.

DUKE OF RICHMOND*Originator* — Kelway*Group* — Kelwayi*Stock* from Kelway

Bloom — Large. Tube curved, slender, short. Segments unequal, connivent; the upper broad with pointed segments, the lower reflexed and narrower. Stamen filaments white; styles white. Perianth tomato red (81-IV) splashed and streaked deeper, faint medial lines, yellow-white throat, a blotch of carmine penciling. Bloom is attractive, and Kelway commends the arrangement on the spike.

Season — Early September.

Spike — Medium tall, erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves with prominent veins.

(Described by George J. Burt.)

EARL COMPTON*Originator* — Kelway. Intro. 1908*Group* — July Flowering*Stock* from Kelway

Bloom — Large (10 cm.). Tube nearly straight, medium long, stout. Segments nearly equal, connivent; the upper horizontal except for the reflexed edges, the lower a trifle narrower than the upper. Stamen filaments white, pink tips; anthers violet. Perianth deep cerise (123-II, but with a slight effect of yellow), the upper segments with an area slightly marked darker, the lower with a sulfur-yellow throat on which are amaranth-red pencilings (168-III). The color is light, delicate, and clear.

Season — Early; 67 to 69 days.

Spike — Medium tall (77 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, medium tall, compact.

Growth — Good; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, prolific.

EARLY AMETHYST*Originator* —*Group* —*Stock* from Crawford

Bloom — Large (10 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and narrower than the lower straight and broad segment. Stamen filaments pinkish; anthers violet. Perianth rosy magenta (169-I), thickly feathered with deeper rosy magenta. Lower lip deep rosy magenta, a yellow splash on the medial line. Color is attractive, and spike well arranged. Four blooms open at one time.

Season — Mid-season; 81 to 86 days.

Spike — Medium tall (88 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow leaves.

Corms — Very large; cormels, few or none.

EARLY PINK⁹*Originator* — Black*Group* — Nanceianus*Stock* from Black

Bloom — Large (11 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed segment. Stamen filaments pinkish; anthers and stigma lavender. Perianth bright rosy scarlet (124-I), with a white throat finely marked or intermixed with French purple (161-II). Blooms well open, of good substance and good color.

Season — Early; 72 days.

Spike — Medium tall (83 cm.), erect, slender, a fair number of blooms (17 on main, 6 and 7 on two branches). Four spikes often borne per corm.

Habit — Erect, medium height, spreading.

⁹ Black says that this variety is a selection of stock furnished by S. Huth of Cuyahoga Falls, Ohio.

Growth — Vigorous; plant well furnished with narrow foliage.

Corms — Large; cormels, very prolific.

EASTER. See Madame Lemoinier.

EASTER BELLS

Originator — Austin. Reg. A. G. S.,

1914

Group —

Stock from Austin

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers white with violet sutures. Perianth lemon-yellow (21-1), deeper yellow throat very faintly feathered with Tyrian rose (155-1). Were it not for the feathering it would closely resemble Victory and Isaac Buchanan in color.

Season — Late August; 108 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (14), not branched.

Habit — Erect, rather tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

EDISON

Originator — Lemoine. Intro. 1896

Group — Lemoinei

Stock from Childs

(Described from cut spike.)

Bloom — Medium size (8 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower nearly straight and narrower. Stamen filaments white with rose tips; anthers lilac, violet sutures. Perianth reddish old rose (142-11) with a madder lake (122-14) blotch terminating in a white dash. A compact bloom of rather good substance.

Season — Early August.

Spike — Medium long, erect, a fair number of blooms (10).

EL CAPITAN

Originator — Kunderd. Reg. A. G. S.,

1914

Group —

Stock from Brown

(Described from cut spike.)

Synonym — Formerly called Tallest Yellow.

Bloom — Medium size (8.5 cm.). Tube straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers drab. Perianth amber-white (12-1), the yellow lip neatly marked with deep Tyrian rose (155), although many of the blooms possess no markings. An excellent light color.

Season —

Spike — Tall (100 cm.), erect, free flowering (23).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms —

ELDORADO¹⁰

Originator — Lemoine. Intro. previous to 1897

Group — Lemoinei hybrid

Stock from Boddington

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellow; anthers yellow. Perianth lemon-yellow (21-1), the lower lip deeper yellow and blotched with ox blood red. Compact bloom of good substance. A good, deep yellow.

¹⁰ There is a *gandavensis* variety of this name originated by Souchet.

Season — Mid-season; 94 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (13).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ELECTOR

Originator — Burchett

Group —

Stock from Burchett

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad with the edges reflexed, the lower reflexed and narrower. Stamen filaments white, tinged with pink; anthers lavender with violet sutures. Perianth currant red (115-IV), throat amber-white (12-1) marked and finely dotted with carmine-purple (156-IV). Compact bloom of good color and velvety texture.

Season — Mid-season; 93 days.

Spike — Tall (109 cm.), erect, a fair number of blooms (15).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with short, rigid, broad leaves.

Corms — Large; cormels, large, prolific.

ELECTRA

Originator — Hopman

Group — Gandavensis

Stock from Velthuys; Hopman

Bloom — Large (12 cm.). Tube curved, rather slender, rather long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers reddish with violet sutures. Perianth cochineal red (83-1), with a lemon-yellow throat blotched with scarlet (85-IV). A good, clear color. Compact bloom of medium substance.

Season — Mid-season; 87 days.

Spike — Tall (100 cm.), erect, slightly curved, a fair number of blooms (15).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ELIZABETH KURZ

Originator — Pfitzer

Group —

Stock from Chamberlain & Gage

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth pure white, edges of segments tinted pale rosy pink (129-1), the lower segments slightly tinged with yellow in the throat. A compact bloom of medium substance and delicate color. Six to eight blooms open at one time. "Good for garden and cutting," say Chamberlain & Gage.

Season — Mid-August; 99 days.

Spike — Medium tall (85 cm.), erect, blooms freely (21). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

ELLA ¹¹

Originator — Kelway. Intro. 1905

Group — July Flowering

Stock from Kelway

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed. Stamen filaments pinkish; anthers red-violet. Perianth carmine lake (121-II), throat lemon-yellow. On some flowers, segments other than those of the throat are touched with yellow. Pointed segments; good substance.

¹¹ Krelage catalogs a variety Ella introduced in 1892. Childs also has a variety named Ella.

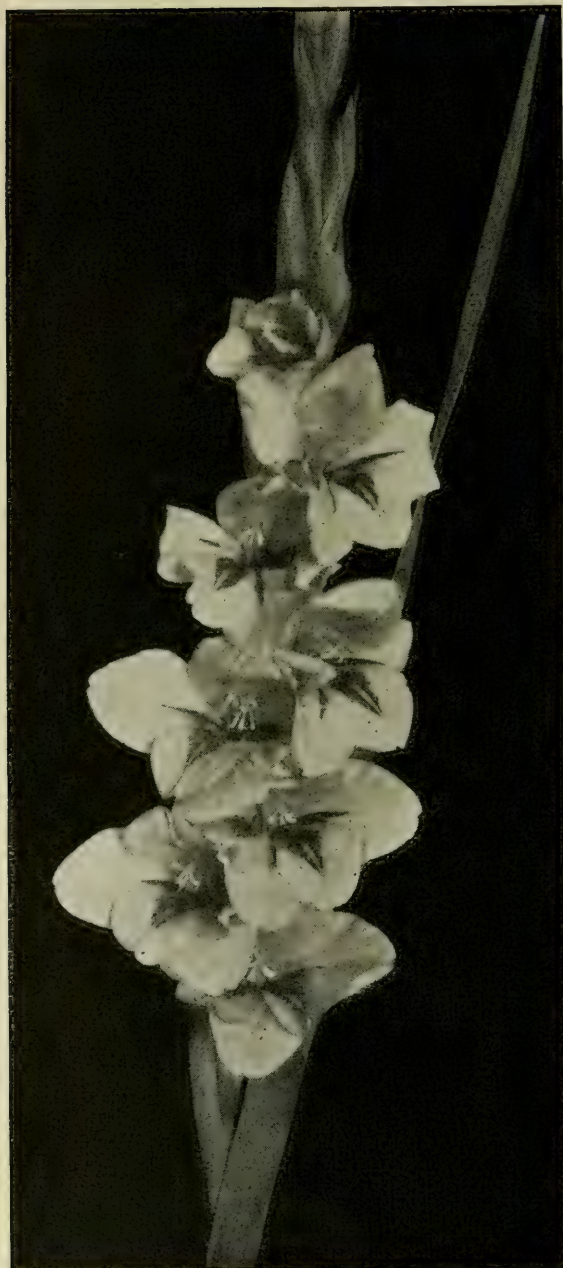


FIG. 47. EMBOSSED YELLOW

Season — Mid-season; 89 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15). Often three spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well-furnished with broad leaves.

Corms — Medium large; cormels, prolific.

EMBOSSED YELLOW

Originator — Stewart.

Intro. 1912. Reg.

A. G. S., 1914

Group —

Stock from Stewart

Bloom — Medium size (8 cm.). Tube slightly curved, slender, medium long. Segments nearly equal, connivent; the upper horizontal, rather hooded, and broad, the lower narrower. Stamen filaments creamy white; anthers lavender-rose. Perianth canary-yellow (17-1), upper segments suffused with rose. The deeper yellow throat is blotched with strawberry red (110-1), and the blotch is pierced by a dash of yellow. Each segment is somewhat raised on the medial line, which gives the name "Embossed" to the variety. Resembles Henri Lemoine. The flowers are set close on the spike.

Season — First week in August; 74 to 89 days.

Spike — Medium tall (86 cm.), erect, a fair number of blooms (15), slender, two branches.

Habit — Erect, medium tall, rather compact.

Growth — Medium vigorous; plant furnished with medium poor narrow leaves.

Corms — Medium size; cormels, few.

EMMA (Coblentz). See Velvet King.

EMMA THURSBY

Originator — Childs. Intro. 1892
Group — Gandavensis
Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth lilacy white, often much feathered with Tyrian rose (155-III) and with large French purple (161-IV) blotches. The bloom is compact and of good substance, but the color is perhaps a little too mixed.

Season — Late August.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

EMPIRE (Stewart). See Lacordaire.

EMPOCLES

Originator — Kelway. Intro. 1908
Group — July Flowering
Stock from Kelway

Bloom — Large size. Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed and narrow. Stamen filaments and styles pink. Perianth Lincoln red (88-III), with a large yellow throat penciled slightly with Tyrian rose (155). The lower segments are smaller, and the flowers are wide open.

Season — Late August.

Spike — Tall, erect, blooms freely.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.
 (Described by George J. Burt.)

EMPRESS OF INDIA

Originator — Velthuys. From seed
 1908
Group —
Stock from Velthuys

Bloom — Large (10 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper horizontal and slightly hooded, the lower reflexed and narrower than the upper. Stamen filaments white with red tips; anthers darkest violet. Perianth brighter than plum-violet (172-IV), a white dash in the throat around which the color is lighter. Color almost black, and very velvety in appearance. Bloom compact and of good substance.

Season — Early to mid-August; 86 days.

Spike — Medium short (62 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, medium to dwarf, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

ENCHANTRESS¹²

Originator — Hopman. Intro. 1892
Group — Gandavensis
Stock from Hopman

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac; anthers lilac with violet sutures. Perianth violet-mauve (195-I), the inner segments darker than the outer, the lower segments penciled with amaranth-red (168-IV). A very beautiful, dainty color. A compact bloom of medium poor substance. Five blooms open at one time.

Season — Mid-season; 82 days.

¹² Souchet originated a variety of this name introduced in 1886. In 1893 E. S. Miller sold to Childs a blush-white variety of the same name.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ERICA VON BARCZAY

Originator — Pfitzer. Intro. 1911

Group — Nanceianus

Stock from Pfitzer

Bloom — Large (10 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers lilac. Perianth crimson-red

(114-I), rather drab, deeply feathered with plum-violet (172-IV) and blotched with carmine blood-red.

Season — Mid-season to late; 104 days.

Spike — Medium tall (110 cm.), erect, a fair number of blooms (18). Two spikes borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ERWIN MAYER

Originator — Pfitzer. Intro. before 1906

Group — Nanceianus

Stock from Pfitzer

Bloom — Large (14 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, red tips; anthers maroon. Perianth deeper than ox blood red (94-IV), very deeply feathered, a white area deep in the throat. An excellent deep color. A compact bloom of tough substance.

Season — Mid-season; 97 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (11).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

ESTELLA

Originator —

Group —

Stock from Wright

Bloom — Very large (16 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad. Stamen filaments rosy white; anthers pinkish lavender. Perianth cardinal-

FIG. 48. ESTELLA

red (112-I), with amber-white throat, speckled with French purple (161-IV). A rather compact, wide-open bloom of excellent colors and unusual substance for one so large.

Season — Mid-season; 78 to 89 days.

Spike — Very tall (117 cm.), erect, a great number of blooms (21), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with extra broad leaves.

Corms — Medium large; cormels, prolific.

ETEOCLES

Originator — Kelway. Intro. 1906

Group — Childsii

Stock from Kelway

Bloom — Medium size (8 cm.). Tube curved, medium slender, short. Segments almost equal, connivent; the upper horizontal and broad, the lower reflexed. Stamen

filaments vermilion; anthers lavender. Perianth poppy red with geranium red (89) streaks on a lemon-yellow (21) throat. Color good.

Season — Mid-August; 84 to 85 days.

Spike — Medium short (68 cm.), erect; a fair number of blooms (11).

Habit — Erect, rather dwarf, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Small; cormels, few.

ETHEL

Originator — Childs (?)

Group — Childsii

Stock from Woodruff

Bloom — Medium size (7.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments salmon-white; anthers red-violet. Perianth scarlet (87-1), amber-white throat marked with crimson-red. A rather compact bloom of medium substance. Five blooms open at one time. Woodruff calls this variety salmon-rose in color so that this may not be the same one cataloged by him.

Season — Medium late; 105 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

EUCCHARIS

Originator — Souchet-Vilmorin. Intro. 1899

Group — Gandavensis

Stock from Dreer

Bloom — Medium size (9 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments white; anthers lavender. Perianth white, faintest tinge of blush, lower lip of yellow-green and faintly feathered with pinkish orange. A very dainty, clear color.

Season — Mid-season; 93 days.

Spike — Medium tall (89 cm.), erect, a fair number of blooms (18).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad, prominently veined leaves.

Corms — Small; cormels, few.

EUGENE SANDOW

Originator — Kelway. Intro. 1900

Group — Kelwayi

Stock from Kelway

Bloom — Large (12 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white with rose tips; anthers lavender. Perianth Lincoln red (88-IV), with a pale lemon-yellow throat on which is a large blotch of blood red (93). Edges of segments are feathered with very dark violet. Kelway gives it as an example of excellent substance, but here it is only medium. Bloom well open.

Season — Mid-season; 81 to 89 days.

Spike — Tall (105 cm.), very erect, blooms borne freely (20 on main, with 8 on a secondary).

Habit — Erect, rather tall, spreading.

Growth — Vigorous, spreading; plant well furnished with broad leaves.

Corms — Very large; cormels, large though few.

EUGENE SCRIBE

Originator — Souchet-Vilmorin. Intro. 1868

Group — Gandavensis

Stock from Childs; Umpleby

Bloom — Medium size (9 cm.). Tube straight, slender, long. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen

filaments white. Perianth lilac-purple (160-1), edges of segments feathered with rosy magenta, yellow throat thickly dotted with lilac-purple.

Season — Mid-August to late August; 93 days.

Spike — Medium tall (82 cm.), erect, a fair number of blooms (22). Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad, prominently veined leaves.

Corms — Medium size; cormels, few.

EULER

Originator — Kelway. Intro. 1906

Group — Childsii

Stock from Kelway

Bloom — Very large (13 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrow. Stamen filaments vermilion; anthers violet. Perianth intermediate between bright rosy scarlet and russet-orange, throat creamy white, thickly speckled with cochineal red. Bloom wide open, of good size, and color acceptable.

Season — Mid-season; 80 to 90 days.

Spike — Medium tall (78 cm.), rather drooping and curved, a fair number of blooms (13), two branches. Two spikes frequently borne per corm.

Habit — Not so erect as it should be, medium tall, spreading.

Growth — Fairly vigorous; plant medium well furnished with broad leaves.

Corms — Large; cormels, small and few.

EUREKA

Originator — Franken Brothers

Group —

Stock from Franken Brothers

Bloom — Medium small (7 cm. across and much longer). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and narrow, the lower straight and broader. Stamen filaments white; anthers violet. Perianth crimson-carmine (159-I), deeper shading, feathering, and pencilings of crimson-carmine (159-IV). Good substance, but not well open.

Season — Mid-August; 97 days.

Spike — Medium tall (93 cm.), erect; a fair number of blooms (—), branched.

Habit — Erect, medium height, rather compact.

Growth — Very vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

EUROPA

Originator — Pfitzer. Intro. 1911

Group — Gandavensis

Stock from Pfitzer

Bloom — Large (12 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth pure white, lower segment tinged with amber-white, and the faintest indication of crimson-carmine in the throat, though not visible. The bloom is well arranged, well open, and perhaps is the best white for this reason on the trial grounds. Better arrangement than that of Lily Lehmann. Extra good for commercial use.

Season — September 8; 108 to 110 days.

Spike — Tall (102 cm.), erect, a fair number of blooms (18), branched. Two spikes often borne per corm.

Habit — Often rather drooping, tall, spreading.

Growth — Good; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

EVA¹³*Originator* — Michell*Group* — Childsii*Stock from* Michell

Bloom — Large (10.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments pink; anthers violet. Perianth madder lake (122-II) with carmine lake stripes on a white throat. Edges of segments feathered with dull purple lake (170-II). A good color.

Season — Mid-August to late August; 97 days.

Spike — Medium tall (72 cm.), erect, a medium quantity of bloom (14 on main, 3 on secondary).

Habit — Erect, rather tall, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

EVALINE*Originator* — Groff*Group* —*Stock from* Woodruff; Stewart

Synonyms — Stewart No. 11, Smoky Violet; Large Purplish; John Schmelzer.

Bloom — Large (10–12 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments vermilion; anthers violet. Perianth crushed strawberry (109-III), segments feathered with vinous purple (171-II). A dingy, muddy color. Well arranged to form an excellent spike of bloom. Good substance.

Season — Mid-season; 72 days.

Spike — Medium tall (86 cm.), erect, a large number of blooms (19).

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

EVOLUTION

Originator — Groff, 1904. Reg. A. G. S., 1914. Cowee

Group —*Stock from* Cowee

Bloom — Large (10 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper much reflexed and broad, the lower reflexed and narrower. Stamen filaments white with pink tips; anthers violet. Perianth pale lilac-rose (178), freely feathered with violet-rose, white throat blotched with carmine. Bloom wide open, but color often is not so clear as it should be.

Season — Mid-season to late; 90 to 108 days.

Spike — Medium tall (87 cm.), erect, much curved, a fair number of blooms (12), bare for nearly half its length. Two spikes frequently borne per corm.

Habit — Erect, medium tall, very spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Large; cormels, few, medium large.

EXPANSION

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii*Stock from* Childs

Bloom — Medium size (9 cm.). Tube nearly straight, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments reddish; anthers violet. Perianth scarlet (87-I) blotched with blood red (93) on a white throat. Widely expanded blooms. Childs' description, "white, pink and crimson," is rather misleading. Good substance.

¹³ Vilmorin, in 1872, introduced a *goudereuse* variety of this name. Krelage, in 1890, introduced a *Lemoinei* variety of the same name. Childs originated and introduced a rose-colored variety in 1890.

Season — Mid-season to late; 112 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

FAERIE

Originator — Kunderd

Group —

Stock from Cushman

Synonym — Cream Pink; not Fairy (Stewart).

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, pink tips; anthers white, lavender sutures. Perianth rose-pink (120-I), with lemon-yellow (21-I) throat speckled and penciled with French purple (161-IV). A compact bloom of medium good substance. One of the daintiest pinks. Well open. Several blooms open at one time.

Season — Mid-season; 76 days.

Spike — Medium tall (100 cm.), erect, a large number of blooms (19).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

FAIR MAID

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (11.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments creamy white; anthers violet. Perianth lilac white (much deeper in color in 1913, due to continued sunny and hot conditions) with a Tyrian rose (155-I-IV) blotch deepening from light to dark in center, and with yellow-green medial lines. Color is dainty, and bloom is of good size. In 1913, color somewhat resembled that of America.

Season — Early August; 83 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Large; cormels, prolific.

FAIRY¹⁴

Originator — Stewart

Group —

Stock from Stewart

Synonym — Mrs. James Lancastershire (Tracy). Exhibited in 1909 as Fairy Queen, changed in 1913 to Fairy.

Bloom — Large (10 cm.). Tube nearly straight, medium slender, long. Segments unequal, connivent; the upper horizontal and narrow, the lower slightly reflexed and broader. Stamen filaments white; anthers lilac. Perianth delicate salmon flesh (138-III), upper segments with purple-rose (150-III) faint splashings; as the flower gets older, these markings become violet-rose (154-IV). The lower segments are often devoid of blotches; in others one or two lower segments are blotched with crimson-red (114-II) surrounded by Naples yellow (29-IV). Buds are distinctly orange colored. Color is rather dainty. Substance though not the best is fairly good. Five blooms open at once.

Season — Early; 67 to 68 days.

Spike — Medium tall (87 cm.), erect, only a fair number of blooms (12), branched.

Habit — Erect, medium tall, compact.

Growth — Medium good; plant well furnished with medium narrow leaves.

Corms — Large; cormels, large, prolific.

FAIRY QUEEN. See Fairy.

¹⁴ Another variety named Fairy was introduced by Craft in 1865.

FANTASTIC*Originator* — Childs. Intro. 1902.

Reg. A. G. S., 1914

Group — Childsii*Stock from* Childs

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments vermilion; anthers violet. Perianth bright scarlet (85) with white throat marked with crimson-red (114-11). A good color.

Season — Mid-August; 94 days.

Spike — Medium tall (86 cm.), erect, a fair number of blooms (13).

Habit — Erect, rather dwarf, spreading.

Growth — Medium poor; plant furnished with rather poor foliage.

Corms — Medium size; cormels, few.

FARMINGTON*Originator* — White*Group* —*Stock from* White

Bloom — Medium size (9 cm.). Tube curved, medium slender, long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth lilac-purple (160-1) blotched with crimson-carmine (159-111). Blotch is not of a decided shape, but is stippled. Could be called a good pink variety. Bracts wither before flower opens. An unusually bright pink.

Season — Mid-season; 80 to 85 days.

Spike — Medium tall (88 cm.), erect, a fair number of blooms (14).

Habit — Rather erect, medium tall, spreading. Two spikes often borne per corm.

Growth — Vigorous; plant medium well furnished with narrow leaves.

Corms — Medium size; cormels, few.

FASCINATOR*Originator* — Miller*Group* —*Stock from* Childs

Bloom — Medium size (9 cm.). Tube nearly straight, stout, very short. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed segments. Stamen filaments white; anthers violet. Perianth Rose Neyron red (119-1) with a Tyrian rose (115-11) intermixed blotch. Compact bloom, not of exceptional substance.

Season — Early August; 85 to 90 days.

Spike — Long (100 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, medium tall, spreading.

Growth — Rather vigorous; plant well furnished with medium broad leaves.

Corms — Medium size.

FAUST (Warnaar). See George Paul.**F. BERGMANN***Originator* — Lemoine*Group* — Lemoinei*Stock from* Childs

Bloom — Large (10.5 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers lilac. Perianth madder red (86-111) becoming lighter toward center, blotched with ox blood red (94-11). Segments somewhat mottled — an objection. Rather loose bloom of good substance.

Season — Medium early; 75 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

FERDINANDO CORTEZ*Originator* — Vilmorin. Intro. 1902*Group* — Gandavensis*Stock from* Vaughan

Bloom — Small (7 cm.). Tube curved, slender, very long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white. Perianth near amber-yellow (28-11) with dull violet-old-rose (115-IV) stripes in throat. Blooms compact, and substance excellent, segments being tough rather than brittle. Three blooms open at one time.

Season — Mid-season; 96 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (11), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

FLAMBEAU*Originator* — Miller*Group* — Childsii*Stock from* Childs

Bloom — Medium size (8-9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth scarlet (87-11), with an amber-white (12-1) throat thickly stippled to form blotch of Tyrian rose (155-IV). Rather loose bloom of medium substance. Five blooms open at one time.

Season — Mid-season; 84 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (15), branched. Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant very abundantly furnished with medium broad foliage.

Corms — Medium size; cormels, few.

FLANAGAN NO. 1*Originator* — Flanagan*Group* —*Stock from* Flanagan

Bloom — Medium size (9 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Segments are pointed. Stamen filaments pinkish; anthers large, cream-colored, with violet sutures. Perianth vermilion-red (87-1), feathered with drab-scarlet and with slight pencilings of geranium lake (89-IV) on a whitish throat. A good color. A compact bloom of good substance.

Season — Mid-season; 83 days.

Spike — Tall (128 cm.), model of erectness, a large number of blooms (26), two long branches.

Habit — Erect, very tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

F. L. OAKLEY*Originator* — Childs. Reg. A. G. S., 1914*Group* — Childsii*Stock from* Childs

Bloom — Medium size (9 cm.). Tube nearly straight, rather slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and a trifle narrower. Stamen filaments white; anthers yellow with violet sutures. Perianth scarlet (85-IV) with a pale lemon-yellow (21-1) throat. Good substance. Very showy.

Season — Mid-September.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (12 on main, 5 on secondary).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

FLORENCE

Originator — Souchet-Vilmorin. Intro.
1907
Group — Gandavensis
Stock from Chamberlain & Gage;
Vaughan

Bloom — Medium size (8.5 cm.). Tube curved, medium long, medium slender. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilacy white; anthers red-violet. Perianth brighter than reddish violet (180-II), with a white throat and a stippled blotch of Tyrian rose (155-IV). Bloom rather compact and of good substance.

Season — Mid-season; 98 days.

Spike — Tall (105 cm.), erect, blooms freely (19), branched. Two spikes occur per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant very well furnished with very broad leaves.

Corms — Medium large; cormels, prolific.

FLORIDA

Originator — ——. Intro. about 1904
Group — Childsii
Stock from Moore

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth crimson-red (114-III), with amber-white (12-1) throat blotched with currant red (115-IV), slight tinting of slate in outer edge of segments. Rather good color. Compact bloom of medium substance.

Season — Mid-season; 83 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (14), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

FRA DIAVOLO

Originator — Souchet-Vilmorin. Intro.
1886
Group — Gandavensis
Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers light lilac, rather elongate. Perianth carmine lake (121-II), two shades intermixed with whitish medial lines and edges of outer segments marked with purple-brown (166-1); the lemon-yellow throat marked lightly with Tyrian rose. Bloom compact, substance excellent. Six blooms open at one time.

Season — Early August; 106 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (12), branched, compact.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Very large; cormels, few.

FRAU C. P. STRASSHEIM

Originator — Pfitzer. Intro. 1912
Group — Gandavensis
Stock from Pfitzer

Bloom — Medium size (7 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments ———; anthers ———. Perianth glowing salmon-red, flamed darker — a much spotted color. A compact bloom of medium substance. Four blooms open at one time.

Season — Rather late; 111 days.

Spike — Medium tall (73 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall, rather spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium small; cormels, prolific.

FRAU DORA LIEBAU*Originator* — Pfitzer. Intro. 1913*Group* — Lemoinei*Stock from* Pfitzer

Bloom — Medium size (8-9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white, with reddish sutures. Perianth pure white, often tinted rose at edges of segments, blotched with magenta (182-1) or purplish mauve (186-1). An attractive blotch. Flowers face opposite directions, which seems a serious fault. A compact bloom of medium substance. Eight blooms open at one time.

Season — Mid-season; 97 days.

Spike — Tall (105 cm.), erect, a large number of blooms (21), branched.

Habit — Erect, tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

FRAU GABRIELE CHARTON

Originator — Pfitzer. Intro. before 1906

Group — Nanceianus*Stock from* Pfitzer

Bloom — Medium size (7-9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with lavender sutures. Perianth pure white, slight lemon tinge to the lower segments, faint touch of crimson-carmine at base of throat. Less lemon than in Lily Lehmann. Slight splashings of Tyrian rose often appear in segments. Resembles Reine d'Anjou, but the latter variety seems to possess more of the Tyrian rose splashings. Both of these varieties have mixed aestivation. Bloom compact and of good substance.

Season — Mid-season; 90 days.

Spike — Medium short (67 cm.), rather erect, a fair number of blooms (14), branches not observed.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, prolific but small.

FRAU HERME SEIDEL

Originator — Pfitzer. Intro. 1909-1912

Group — Nanceianus*Stock from* Pfitzer

Bloom — Large (10 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed and broad. Stamen filaments red; anthers violet. Perianth slate-violet (173-III) with heavy splashes of madder lake (122-IV), apparently showing through the slate-violet. Throat sulfur-yellow. Color peculiar and does not seem pleasing.

Season — Mid-season; 89 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (13).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, rather prolific.

FRAÜLEIN*Originator* — Scheubel*Group* —*Stock from* Christy

Bloom — Medium size (9 cm.). Tube curved, stout, very short. Segments unequal, connivent; the upper horizontal and narrower than the lower broad segment. Stamen filaments white; anthers white. Perianth amber-white (12-III), with light lemon-yellow (23-1) intermixture in the throat. Excellent substance, dainty color, and compact and admirable shape.

Season — Early September; 111 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

FRAU OTTO BEYRODT

Originator — Pfitzer. Intro. 1913

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (9 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth very light lilac (176-I), feathered edge, and rose-mauve (153-IV) tinted throat penciled on medial line with Tyrian rose (155-I). Color called "white, flamed lilac-rose" by Pfitzer. Rather loose bloom of medium substance, good color, well open.

Season — Mid-season; 96 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (12).

Growth — Very vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

FREDERIKA

Originator —

Group —

Stock from Warneer

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers blue-violet. Perianth light scarlet (87-I) with white medial lines and lemon-yellow (21-I) throat, blotched with blood red (93-IV) and dotted around the margins. Fine form, compact, attractive colors, good arrangement.

Season — Mid-season; 96 to 100 days.

Spike — Medium tall (86 cm.), erect, a fair number of blooms (10), branched.

Habit — Erect, medium tall, rather spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, medium prolific.

FRILLED PINK (2-518)

Originator — Woodruff

Group — Lemoinei

Stock from Woodruff

Bloom — Medium large (10 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers lavender. Perianth peach blossom (127-I), blotched with Tyrian rose (155-IV) bordered with lemon-yellow. Glistening color. Buds orange. Edges of segments slightly frilled. Compact bloom of good substance.

Season — Early; 75 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (15), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

FRITHJOF

Originator — Krelage

Group — Gandavensis or Childsii

Stock from Krelage

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth scarlet (85-IV) with a trifle deeper medial line in throat. Really a self color. Compact bloom of medium good substance.

Season — Mid-season; 82 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

GAITY

Originator — Kunderd

Group — Nanceianus

Stock from Chamberlain & Gage; Cushman

Synonyms — Pigeon; Bird of Paradise.

Bloom — Medium size (9 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broader than the lower straight segment. Stamen filaments white, reddish tips; anthers lilac with violet sutures. Perianth light scarlet (87-1) splashed with deeper scarlet (87-iv), the lower segments more thickly splashed. A pure white throat blotched and penciled with crimson-red (114-III). Good open bloom of striking color and excellent substance. — Attractive.

Season — Mid-season; 75 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (14), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Large; cormels, many.



FIG. 49. FRILLED PINK

Spike — Tall (100 cm.), erect, a fair number of blooms (14), not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

Corms — Large; cormels, few.

GALLIENI

Originator — Souchet-Vilmorin. Intro. 1899

Group — Gandavensis

Stock from Chamberlain & Gage

Bloom — Large (11 cm.). Tube straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and broader. Stamen filaments reddish; anthers violet. Perianth scarlet (87-iv) becoming lighter, with lemon-yellow throat. Blooms not wide open, compact, and of good substance.

Season — Early September; 111 days.

GATES' WHITE

Originator — Gates

Group —

Stock from Gates

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and often narrower than the lower reflexed segment. Stamen filaments lilac white; anthers violet. Perianth white with broad dash or blotch of Tyrian rose (155-iv) in throat. Bloom compact and of good substance. Six to seven blooms open at one time.

Season — Medium late; 110 days.

Spike — Very tall (130 cm.), erect, a large number of blooms (22), three branches. Two or three spikes per corm.

Habit — Erect, tall, spreading.

Growth — Very vigorous; plant exceptionally well furnished with broad leaves.

Corms — Medium large; cormels, prolific.

GAY BUTTERFLY

Originator —

Group — Lemoinei

Stock from Woodruff

Bloom — Small (7 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments salmon-white; anthers reddish lilac. Perianth light old carmine-red (107-I), blotched with fiery red (80-IV). Compact bloom of excellent substance. Three blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Small; cormels, few or none.

GENERAL DE NANSOUTY

Originator — Lemoinei. Intro. 1895

Group — Lemoinei

Stock from Boddington

Bloom — Medium size (8 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac-red; anthers lilac-red. Perianth light violet (190-I), feathered and flecked with pansy violet (190-III) with a large intermixed blotch of purple-garnet (165-IV). Not a clear color. Pollen badly soils the blotch. Compact bloom of medium good substance.

Season — Mid-season; 83 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (9).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

GENERAL KUROKI

Originator — Kelway. Intro. 1905

Group — Kelwayi

Stock from Kelway

Bloom — Large (12 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper slightly reflexed at the tips, the lower reflexed and narrower. Stamen filaments white, pink tips; anthers white with blue suture lines. Perianth crimson-carmine (inner segments 159-I-III, outer 159-IV). Medial lines and throat near white. The dark color seems crystalline in the sunshine; foliage approaches base of spike well. Bloom well open. Five blooms open at one time. Kelway calls color purple.

Season — Mid-season; 70 to 80 days.

Spike — Medium tall (80 cm.), erect, well arranged, a fair number of blooms (16 on main, 8 on branch). Each of the corms bloomed at the same time.

Habit — Erect, medium tall, spreading.

Growth — Upright, vigorous; plant well furnished with medium broad, rigid leaves.

Corms — Medium size; cormels, many, small.

GEORGE BETSCHER. See Taconic.

GEORGE B. REMSEN

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower broader.

Stamen filaments white, pink tips; anthers violet. Perianth crimson-carmine (159-1), two inner segments with yellow-green medial lines and stripes of deeper crimson-carmine. Blooms often rather bunched on the spike.

Season — Early September; 77 days.

Spike — Rather short (50 cm.), erect, a small number of blooms (6), not branched.

Habit — Erect, medium tall, rather spreading.

Growth — Not vigorous; plant has poor foliage.

Corms — Medium size; cormels, medium large, few.

GEORGE HÄUSSER

Originator — Pfitzer. Intro. 1912

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers red-violet. Perianth ox blood red (94-IV) with lighter medial line and whitish areas deep in throat. Compact bloom of good substance. Six blooms open at one time.

Season — Mid-season; 89 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

GEORGE PAUL¹⁵

Originator — Lemoine. Previous to 1894

Group — Nanceianus

Stock from Munsell; Childs; Warnaar; Cowee

Synonym — Faust sent by Warnaar; Harvard (Tracy).

Bloom — Large (12 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broader. Stamen filaments white, red tinge; anthers dark red-violet. Perianth crimson-red (114-IV), with greenish-white throat thickly marked with crimson-red. Bloom well open, of good substance, and of excellent rich color.

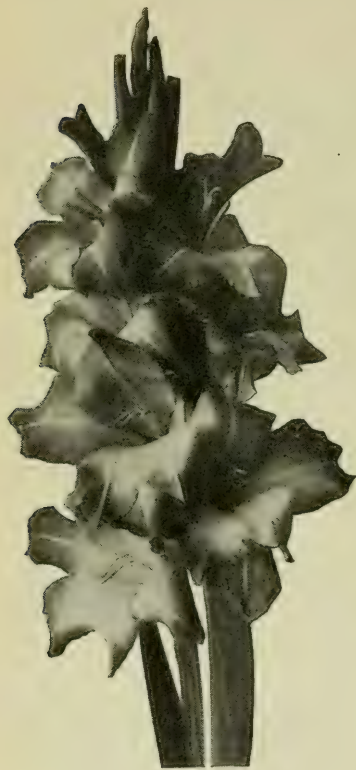


FIG. 50. GENERAL KUROKI

Season — Mid-August to late August; 95 days.

Spike — Medium tall (85 cm.), erect, blooms freely (14), not branched.

Habit — Rather drooping, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

GEORGE VOLLMAR

Originator — Childs. Reg. A. G. S., 1914

Group — Gandavensis

Stock from Childs

Bloom — Medium size (8 cm.). Tube straight, rather slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers cream with lilac sutures. Perianth salmon-flesh

¹⁵ Distinct from Harvard of Teas and most other Harvards.

(138-1) feathered with carmine, lemon-yellow throat and medial lines. No markings in throat. Good color, attractive shape, and well arranged on spike.

Season — Early September; 110 days.

Spike — Medium tall (85 cm.), very erect, blooms freely (20), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Medium large; cormels, few.

GERTRUDE. See Taconic.

GIANT LAVENDER. See Mary Fennel.

GIGANTIC¹⁶

Originator — Hopman. Intro. 1912

Group —

Stock from Hopman

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers lavender. Perianth white, blotched, intermixed with rosy magenta (near 169-IV), and often with a slight feathering of rose in the segments. An excellent white. Compact bloom of medium good substance. Six blooms open at one time.

Season — Mid-season; 90 days.

Spike — Tall (110 cm.), erect, many blooms (20), two branches.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

GIL BLAS

Originator — Lemoine. Previous to 1894

Group — Lemoinei

Stock from Boddington

Bloom — Large (10 cm.). Tube nearly straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lavender-white; anthers lavender. Perianth salmon-carmine (125-1) with ox blood red (94-II) blotch, becoming at the sides lighter in color and more scarlet. Blotch bordered with light lemon-yellow. Good color. Well open, attractive shape. Compact and of good substance. Color "salmon-rose" is given by Boddington.

Season — Early; 67 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

GLARE

Originator — Childs. Intro. 1908. Reg. A. G. S., 1914

Group — Gandavensis

Stock from Childs

Bloom — Medium size (9 cm.). Tube straight, very stout, very short. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed and broad segment. Stamen filaments reddish; anthers violet. Perianth scarlet (85-II) with a lilac-purple (160-IV) intermixed blotch. Compact bloom of excellent substance. Often blooms on all sides of spike.

Season — Mid-August; 96 to 98 days.

Spike — Medium tall (68 cm.), very erect, a fair number of blooms (10), not branched.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, many.

¹⁶ Burbank has cataloged a variety of this name.

GLEAM*Originator* — Miller*Group* — Childsii*Stock from* Childs

Bloom — Large (11 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers reddish violet with nearly black sutures. Perianth near currant red (115-III) blotched with purple-garnet (165-IV), lighter at sides. Good clear color. Did not seem an attractive shape. Medium good substance.

Season — Rather early; 74 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (18), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

Corms — Medium large; cormels, few.

GLORY (Childs)*Originator* — Childs. Intro. 1908*Group* — Gandavensis*Stock from* Childs

Bloom — Medium large (9-11 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth more pinkish than salmon-pink (126-II) with a crimson-carmine blotch, darker on the medial line; slight feathering of rose-pink in upper segments. Does not seem to be a good keeper. Good color.

Season — Early September; 110 days.

Spike — Medium tall (89 cm.), often much curved and twisted, a fair number of blooms (11), not branched.

Habit — Erect, medium tall, spreading.

Growth — Medium poor; plant poorly furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

GLORY (Kunderd)*Originator* — Kunderd. Intro. 1911.

Reg. A. G. S., 1914

Group — Ruffled*Stock from* Kunderd

Synonym — Registered as Kunderdi Glory.

Bloom — Large (10-11 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments pinkish white; anthers violet. Perianth amber-white (12-IV), often becoming lilacy white (7-III), slightly suffused with light rose, especially in outer edges of segments. Buds rose tinted. Lower segments with rosy magenta (169-IV) lines in the throat. Ruffled; fine compact form of excellent substance. Flower bracts are large. Bloom often described as light yellow.

Season — Late August; 106 days.

Spike — Medium tall (75 cm.), erect, fair number of blooms (14), one branch.

Habit — Very erect, medium tall, spreading.

Growth — Very vigorous; plant well furnished with very broad (3 cm.) foliage.

Corms — Large; cormels, many.

GLORY OF HOLLAND*Originator* —*Group* —*Stock from* Velthuys

Bloom — Medium large (9-11 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and narrower, the lower reflexed and broad. Stamen filaments white; anthers white. Perianth pure white with faintest Tyrian rose (155-I) blotch. Dainty color and compact bloom of good substance.

Season — September 25, 1913; 104 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, medium tall, compact.

Growth — Good; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.



FIG. 51. GLORY (KUNDERD)

GLOWING COAL*Originator* — Childs. Reg. A. G. S., 1914*Group* — Childsii*Stock from* Childs

Bloom — Medium size (7.5 cm.). Tube straight, medium slender, short. Segments unequal, connivent; the upper horizontal and narrower than the straight, broad lower segment. Stamen filaments white; anthers red-violet. Perianth scarlet (85-iv) with a French purple (161-iv) blotch on a lemon-yellow throat. Good color, large bloom, of medium good substance.

Season — Mid-season; 88 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with narrow leaves.

Corms — Medium size; cormels, few.

GOETHE*Originator* — Pfitzer. Intro. 1914*Group* — Lemoinei*Stock from* Pfitzer

Bloom — Large (10 cm.). Tube nearly straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lavender; anthers lavender. Perianth bright violet (198-1) deeply feathered (198-iv) amber-white (12-iv) throat broadly dashed and dotted with violet-purple (190-iv). Four blooms open at one time.

Season — Mid-season; 85 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (18), two branches.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, prolific.

GOLDBUG*Originator* — White*Group* —*Stock from* White

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments pinkish; anthers white with violet sutures. Stigmas red. Perianth scarlet (85-iv), throat brilliant lemon-yellow (20-1) spotted and striped with crimson-red (114-iii) with medial line of same color shading into scarlet. Often a small area of yellow at each side of the upper segments. Extraordinary contrast of deep yellow and red.

Season — Mid-season; 81 to 93 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (17).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with narrow leaves.

Corms — Large; cormels, medium small.

GOLDENES VLISS*Originator* — Pfitzer. Intro. 1914*Group* — Gandavensis*Stock from* Pfitzer

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellow; anthers yellow. Perianth yolk yellow (24-1), with lemon-yellow (21-1) center. often feathered with carmine. A compact bloom of medium good substance.

Season — Mid-season; 83 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (16), branched. Often two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

GOLDEN KING

Originator — Black. Reg. A. G. S.,
1914
Group — Seedling of Golden Queen
Stock from Black

Bloom — Medium size (9 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments cream; anthers cream with violet sutures. Perianth lemon-yellow (21-1) with blotches of blood red (93-14). Color a trifle darker than that of Golden Queen. Blooms face several directions. Often double. Compact bloom. Excellent substance.

Season — Mid-season to late; 103 days.

Spike — Tall (100 cm.), erect, very crooked, a fair number of blooms (15), branched.

Habit — Erect, tall, spreading.

Growth — Extra good; plant well furnished with broad leaves.

Corms — Large; cormels, many.

GOLDEN NUGGET (Teas). See Klondyke.

GOLDEN QUEEN (Stewart). See Klondyke.

GOLDFINDER

Originator — Pfitzer
Group — Gandavensis
Stock from Pfitzer

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellow; anthers yellow with violet sutures. Perianth amber-yellow (28-11) penciled with crimson-red (114-14). A good yellow. Compact bloom of excellent substance. Six to seven blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (14), not branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

GOLDQUELLE

Originator — Pfitzer. Intro. 1913
Group — Gandavensis
Stock from Pfitzer

Bloom — Medium size (7.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellowish. Perianth lemon-yellow (21-1), the lower lip a deeper color, no markings. A compact bloom of medium good substance.

Season — Mid-season to late; 105 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (14-16), two branches. Two spikes per corm.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, few.

GORGEOUS

Originator — Miller
Group — Childs; nanceianus
Stock from Childs

Bloom — Medium size (8.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers reddish violet. Perianth poppy color (84-1), with amber-white (12-1) throat. Segments often slightly feathered with drab. Excellent color. Compact bloom of medium good substance. Five blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, few.

GOVERNOR McCORMACK

Originator — Childs. Reg. A. G. S.,
1914

Group — Childsii

Stock from Childs

Bloom — Large (12 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and broader than the upper. Stamen filaments reddish; anthers violet. Perianth carthamin-red (88-IV), with lemon-yellow throat blotched and mottled with amaranth-red (168-IV). Bloom rather loose, of good color, and of good substance.

Season — Mid-August; 94 days.

Spike — Medium tall (71 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium height, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

GRACE

Originator — Iowa Seed Company

Group — Lemoinei

Stock from Iowa Seed Company

Bloom — Medium size (7-8 cm.). Tube straight, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers pale lavender with violet sutures. Perianth crimson-carmine (159-I) with lighter medial lines and blotch of French purple (161-IV) tipped with yellow. A good color. A compact bloom of medium good substance.

Season — Mid-season; 90 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Medium poor; plant rather poorly furnished with medium narrow leaves.

Corms — Small; cormels, few.

GRACE HENRY

Originator — Crawford

Group —

Stock from Mallory & Brown; Crawford

Bloom — Medium size (8 cm.). Tube nearly straight, stout, medium long. Segments equal, connivent; the upper horizontal and broad, the lower straight. Stamen filaments pinkish; anthers dark violet. Perianth blood red (93-IV) with slightly lighter medial lines, yellow-green throat, penciled with strawberry red (110-IV). Bloom somewhat bell-shaped, of excellent color, good substance, and satiny luster. It should be a trifle more open.

Season — Mid-season; 85 days.

Spike — Tall (113 cm.), erect, blooms freely (21 on main spike, 11 and 13 on two secondaries).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

GRACILIS

Originator — Childs. Reg. A. G. S.,
1914

Group — Childsii

Stock from Childs

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments reddish; anthers violet. Perianth deep rose-pink (120-IV)

with carmine-purple lined blotch on an amber-white (12-1) throat, slaty blue featherings in margins of segments. An excellent pink, but feathering is quite a blemish.

Season — Mid-August; 90 days.

Spike — Tall (100 cm.), erect, blooms freely (15), not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

GRÄFIN DEGENFELD

Originator — Pfitzer

Group — Lemoinei

Stock from Pfitzer

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers lilac-white. Perianth amber-white (12-II) blotched with blood red (93-IV) and suffused with rose in the segments. Rather compact bloom of medium good substance. Nine blooms open at one time. One of the best varieties of this type.

Season — Mid-season; 82 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (17).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

GRAHAME-WHITE

Originator — Kelway. Intro. 1911

Group — July Flowering

Stock from Kelway

Bloom — Large (13 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper very broad and horizontal with edges of segments reflexed. Stamen filaments light salmon; anthers lavender. Perianth shrimp pink (75-I) with salmon-pink (76-II) markings; a yellow-green throat penciled and dotted with French purple (161-IV). Wide open and large.

Season — Mid-August; 85 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (16 on main and 5 on branch).

Habit — Erect, medium tall, spreading.

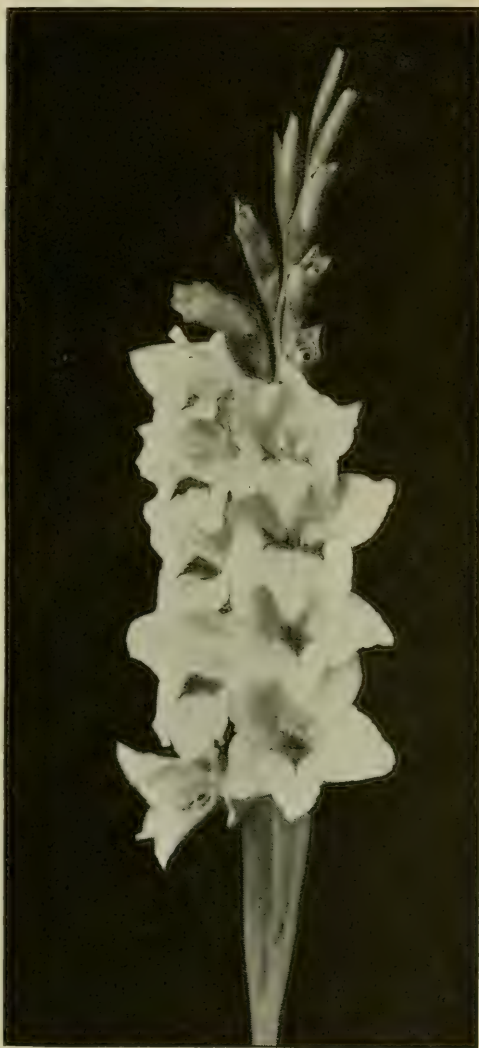


FIG. 52. GRÄFIN DEGENFELD

Growth — Good; plant well furnished with medium broad foliage.

Corms — Large; cormels, prolific but small.

GREAT CARDINAL

Originator — Auten

Group —

Stock from Auten

Synonym — Cardinal 5 X.

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and broader. Stamen filaments white with red tips; anthers red-violet. Perianth deeper than cardinal (112-IV), markings not conspicuous, merely white flecks showing through the cardinal throat. Well open, good substance, clear colors.

Season — Mid-season, late August; 93 days.

Spike — Medium tall (81 cm.), erect, a fair number of blooms (16). Two spikes per corm.

Habit — Erect, rather tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, many and large.

GRENADIER (Huntington). See Velvet King.

GROFF No. 224

Originator — Groff

Group —

Stock from Richardson

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth white, throat amber-white (12-11) slightly intermixed with Tyrian rose (155-1). The buds are very salmony. Bracts are bronze. A rather compact bloom of medium good substance. Seven to eight blooms open at one time.

Season — Mid-season; 90 days.

Spike — Tall (115 cm.), erect, a large number of blooms (23), two branches. Two spikes borne per corm.

Habit — Rather drooping, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

GROSSFÜRSTIN ELISABETH

Originator — Pfitzer. Intro. 1912

Group — Gandavensis

Stock from Pfitzer

Bloom — Large (11 cm.). Tube nearly straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish white; anthers red-violet. Perianth bright salmon-pink (126-1), intermixed throat of geranium red (near 111-1). A compact bloom of good substance.

Season — Mid-season; 84 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (18), not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large size; cormels, prolific.

HALLEY

Originator — Velthuys. Intro. 1910

Group —

Stock from Velthuys

Bloom — Large (11 cm.), wide. Tube curved, stout, very short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments white; anthers violet. Perianth madder lake (122-III) with fine stripes and dots of Tyrian rose (155-IV) on a lemon-yellow throat. Though it is cataloged as salmon, it has considerably more of a pinkish appearance. An attractive color. Substance excellent, and bloom compact. Four or five blooms open at once.

Season — Early, last of July; 70 days.

Spike — Medium tall (100 cm.), erect, often curved, blooms freely (13), branched. Often two or three spikes per corm.

Habit — Erect, medium height, rather compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, many.

HARLEQUIN

Originator — Childs.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrow. Stamen filaments reddish; anthers violet. Perianth lilac-rose (152-I) feathered and striped with carmine-red (113-IV), and with a carmine throat penciled with carmine-red (113-IV). Very much mottled. The medial lines are embossed.

Season — Mid-August; 90 days.

Spike — Medium tall (85 cm.), erect, often curved, a fair number of blooms (15 on main, 6 on branch).

Habit — Erect, medium tall, somewhat spreading.

Growth — Medium vigorous; plant medium well furnished with narrow leaves.

Corms — Medium size; cormels, medium number, good size.



FIG. 53. HALLEY

HARVARD (Teas)¹⁷

Originator —

Group —

Stock from Teas

Bloom — Medium size (8 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal with reflexed edges, the lower much narrower and reflexed. Stamen filaments white; style lavender. Perianth crimson-carmine (159-IV) with a white throat. Flowers appear at various sides of the spike. Color bright, and bloom compact. Seven blooms open at one time.

Season — Early August; 83 to 100 days.

Spike — Medium tall (76 cm.), erect, a fair number of blooms (12-18). Two and three spikes borne per corm.

¹⁷ This is not the Harvard of Tracy, which is George Paul.

Habit — Erect, medium tall, slightly spreading.

Growth — Vigorous; plant medium well furnished with medium broad foliage.

Corms — Medium sized; cormels, large.

HARVARD (Tracy). See George Paul. Often cataloged as Faust.

HARWINTON

Originator — White

Group — Gandavensis

Stock from White

Bloom — Medium size (7 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and narrower than the lower straight segment. Stamen filaments white, pink tips; anthers violet. Perianth carmine (116-I-II), a white area at base of lower inner segment is the only marking. A good distinct color, showy, brilliant.

Season — Mid-August; 97 days.

Spike — Tall (103 cm.), erect, a fair number of blooms (24), often branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium brown leaves.

Corms — Medium size; cormels, many.

HAUFF

Originator — Pfitzer. Intro. 1914

Group — Gandavensis

Stock from Pfitzer

Bloom — Large (11 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth milk white often lightly splashed with rose and with Tyrian rose deep in the throat. A good white. Blooms face opposite directions — a fault. Six blooms open at one time.

Season — Mid-season to late; 104 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium height, compact.

Growth — Vigorous; plant medium well furnished with broad leaves.

Corms — Medium size; cormels, few.

HAZEL HARVEY

Originator — Munsell & Harvey. Reg.

A. G. S., 1914

Group — Gandavensis

Stock from Munsell & Harvey

Bloom — Medium size (9 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth carmine-red (113-I), amber-white (12-I) throat penciled with carmine purple (156-IV). A good compact bloom, good clear colors, and good substance.

Season — Mid-season to medium late; 90 days.

Spike — Tall (115 cm.), erect, blooming freely (21 on main, with 6 to 8 on secondaries).

Habit — Erect, tall, spreading.

Growth — Exceptionally vigorous; plant well furnished with broad leaves.

Corms — Medium large, "increases by divisions"; cormels, prolific.

HELEN

Originator — Childs. Reg. A. G. S.,

1914

Group — Childsii

Stock from Childs

Bloom — Large (11 cm.). Tube nearly straight, rather slender, long. Segments nearly equal, connivent. Perianth lilacy white (7-I) striped and feathered with crimson-carmine (159-IV); on the lower segments the color shades into carmine lake (121-I), spotted with carmine lake (121-III) on yellow-green.

Season — Mid-August; 89 days.



FIG. 54. HAZEL HARVEY

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15 on main, 5 on secondary).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Large; cormels, few.

HELEN SILL

Originator — Crawford

Group —

Stock from Crawford

Bloom — Medium size (9 cm.). Tube nearly straight, slender, long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments deep pink; style a lighter pink. Perianth violet-rose (154-I) ground streaked with Tyrian rose (155-III), and with a deep Tyrian rose (155-IV) blotch. Bloom of medium good substance.

Season — Early September; 106 days.

Spike — Medium tall (78 cm.), erect, blooms freely (18).

Habit — Rather drooping, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

HELEN TRACY

Originator — White

Group —

Stock from White

Bloom — Large (10 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth light Lincoln red (88-I and lighter), the lower segments with lemon-yellow finely dotted throat. Segments slightly feathered with Lincoln red. A purplish tinge surrounds the lemon-yellow throat. Good substance.

Season — Mid-season to late; 104 days.

Spike — Tall (109 cm.), erect, blooms freely (20). Often two spikes borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, large, many.

HELIOTROPE

Originator — Lemoine

Group — Lemoinei

Stock from Dreer

Bloom — Medium size (8 cm.). Tube curved, slender, short. Segments nearly equal, connivent; the upper segment rather hooded and broad, the lower reflexed and narrower. Stamen filaments deep pink; style lilac-white; anthers heliotrope. Perianth violet-purple (192-IV) with a dash of carmine-purple (156-IV) in the throat. A fine deep, rich, velvety bloom.

Season — Mid-August; 99 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms, not branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow foliage.

Corms — Medium small; cormels, few.

HENRI LEMOINE

Originator — Lemoine. Intro. 1903

Group — Lemoinei

Stock from Dreer

Bloom — Large (11 cm.). Tube curved, short, stout. Segments nearly equal, connivent; the upper rather hooded and broad, the lower reflexed and narrower. Stamen filaments lilac-white; anthers lilac. Perianth canary-yellow (17-I), with crimson-red (114-IV) blotch on lower segments cut by a lemon-yellow line. The upper segments are rosy tinged and somewhat frilled. Described by Dreer as orchid-like flowers. About four blooms open at one time.

Season — First to twentieth of August; 82 to 88 days.

Spike — Medium tall (93 cm.), often rather drooping, slender, a fair number of blooms (10), two branches.

Habit — Erect, rather tall, spreading.

Growth — Vigorous: plant medium well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

HENRY GILLMAN

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments nearly equal, connivent; the upper horizontal and broad, the lower straight and broader. Stamen filaments white with pink tips; anthers violet. Perianth deep poppy color (84-IV), with weak washy speckling in the throat and white medial lines.

Season — Early September; 102 days.

Spike — Medium tall (91 cm.), erect, a fair number of blooms (18).

Habit — Erect, medium tall, spreading.

Growth — Vigorous: plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few, medium size.

HERMANN FISCHER

Originator — Pfitzer. Intro. 1910

Group — Gandavensis, but has a distinct Lemoinei blotch

Stock from Pfitzer

Bloom — Medium size (9 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers lilac. Perianth carmine (116-IV) with a large area of French purple (161-IV) in throat. Segments often feathered and flamed with deeper than carmine (116-IV). Good deep color. A rather compact bloom of good substance.

Season — Mid-season to late; 104 days.

Spike — Tall (102 cm.), erect, blooms freely (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous: plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

HEROLD

Originator — Krelage

Group — Nanceianus

Stock from Krelage

Bloom — Large (10 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth near reddish violet (180-IV, a trifle more reddish), blotched with deep carmine-violet (174-IV), deeper at the medial line. Color is not clear. A compact bloom of medium good substance.

Season — Early to mid-season; 75 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (13). Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous: plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

H. G.

Originator — Auten

Group —

Stock from Auten

Bloom — Medium large (9-10 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth deep poppy color (84-IV), wide lines of geranium red (111-IV) on an amber-white throat (12-I).

Attractive markings. Variety named from Henry Gillman, which it somewhat resembles, because it has the same color in the perianth; but it does not have the large blotch and so light a throat as Henry Gillman.

Season — August 8; 87 days.

Spike — Medium tall (87 cm.), erect, blooms freely (21), not branched. Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, medium size.

HIAWATHA

Originator — Hoeg. Reg. A. G. S.,
1912

Group —

Stock from Hoeg

Synonym — Formerly called Aurora.

Bloom — Large (11 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed in such a way that the whole face of the bloom is approximately in one plane. Stamen filaments white with pink tips; anthers red-violet. Perianth rosy pink (118-III-IV) with yellow blotch on lower segments spotted and finely dotted with crimson-red (114-IV). Segments often splashed. A very neat looking bloom. Three to four blooms open at one time.

Season — Medium late; 112 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, rather spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Rather large, good keepers; cormels, few.

HOEG NO. 6

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white, with violet sutures. Perianth geranium red (111-I) with large blotch of French purple (161-IV) in the throat bordered by pale yellow-green. The outer segments have more of a scarlet tinge than geranium. Compact and of exceptional substance.

Season — Early September; 103 days.

Spike — Medium tall (79 cm.), erect, a fair number of blooms (12 on main, 5 on secondary).

Habit — Erect, medium tall, medium spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

HOEG NO. 11

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (11 cm.). Tube curved, slender, short. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments reddish; anthers violet. Perianth lilac-purple (160-III-IV) with yellow-green throat almost covered by a large French purple (161-IV) blotch. Good substance, bright color, well-open bloom. Resembles Indiana (Kelway), but is superior to that variety.

Season — Mid-August to late August; 90 to 100 days.

Spike — Tall (102 cm.), erect, blooms freely (21 on main, 9 on secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 17*Originator* — Hoeg*Group* —*Stock* from Hoeg

Bloom — Large (11.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments white; anthers violet. Perianth poppy color (84-IV) with white throat, marked with ox blood red (94-II). Well open, of deep color.

Season — Late August; 85 to 95 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (15 on main, 6 on secondary). Two spikes borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, many.

HOEG NO. 19*Originator* — Hoeg*Group* —*Stock* from Hoeg

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth deep rose-pink (120-II) with a lemon-yellow throat blotched with carmine-purple (156-III). Flowers well arranged, and colors clear. Bloom compact and of good substance.

Season — August 23; 112 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms (11), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.



FIG. 55. HOEG NO. 17

HOEG NO. 27*Originator* — Hoeg*Group* —*Stock* from Hoeg

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments white; anthers lavender. Perianth reddish old rose (142-I) with amaranth-red (168-III) blotches on dirty amber-white throat. Lighter tinted medial lines. Good substance, and a compact bloom.

Season — Early September; 94 days.

Spike — Tall (102 cm.), erect, blooms freely (19 on main, 6 on secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves, somewhat diseased.

Corms — Medium size; cormels, few.

HOEG NO. 30

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (11 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper laterally reflexed and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender. Perianth sulfury white (14-1V) with large ox blood red (94-1V) blotches on lower segments and suffusion of rose on upper. Rather loose bloom, not of good substance.

Season — Latter part of August; 95 days.

Spike — Medium tall (86 cm.), erect, a fair number of blooms (15 on main, 7 on a branch). Two spikes frequently borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 31

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (13 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments vermilion; anthers violet. Perianth geranium red (111-1), the lip marked with dark geranium red (111-1V). Lower lip appears velvety, but the segments are somewhat rolled, and the color is not clear.

Season — Early; 71 days.

Spike — Tall (100 cm.), erect, blooms freely (21 on main, with 7 and 12 on secondaries). Two spikes often borne per corm.

Habit — Erect, tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 38

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with violet sutures. Perianth bright rose (128-1V) blotched with carmine-purple (156-1V). Good color. Bloom compact and of good substance.

Season — Early September; 112 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (9), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 42

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth scarlet (87-1V) with a pure, unmarked lemony white throat. Bloom compact, of good substance, good shape, and a clear contrast of colors. Seems a good commercial cut flower. Four blooms open at one time.

Season — Mid-season to late; 98 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (12), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous, plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 46

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (8 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers ———. Perianth crushed strawberry (109-I) with lighter medial lines and Tyrian rose (155-IV) area on lower lip. Bloom rather compact and of medium good substance. Six to eight blooms open at one time.

Season — Mid-season; 89 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

HOEG NO. 64

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (10.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth lilacy white (7-I) with Tyrian rose (155-IV) lines in the throat. Bloom compact, of medium good substance, well open, of good shape.

Season — Mid-season; 97 days.

Spike — Medium tall (82 cm.), erect, a fair number of blooms (18), not branched.

Two spikes per corm.

Habit — Erect, medium height, rather compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 69

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments ———; anthers ———. Perianth yellow-green (16-II-III), lower segments deeper in color than upper and with penciled medial lines of amaranth-red (168-IV). Bloom compact and of good substance. One of the best yellows.

Season — Mid-season; 83 days.

Spike — Medium tall, erect, a fair number of blooms (8-10).

Habit — Erect, medium tall, medium spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 72

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (8 cm.). Tube curved, stout, medium short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth poppy color (94-II) with a geranium lake (89-III) blotch merging into dots on the sides, the throat a deep lemon-yellow. Bloom compact, of excellent substance. Edges seem to dry up before the rest of the bloom is past.



FIG. 56. HOEG NO. 69

Season — Mid-August; 96 days.

Spike — Medium short (66 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium dwarf, rather spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

HOEG NO. 76

Originator — Hoeg

Group — Nanceianus (?)

Stock from Hoeg

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments —; anthers —. Perianth poppy color (84-IV), amber-white (12-I) throat, dotted and penciled to form a blotch of scarlet (85-IV). A wide-open, deep-colored, compact bloom of rather good substance.

Season — Mid-season; 90 days.

Spike — Medium tall (75 cm.), erect, slender, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

HOEG NO. 79

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9.5 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth mauve-rose (153-I) with a Tyrian rose (155-I) area in the throat terminated by a dash of amber-white. A rather compact bloom of medium good substance. Four blooms open at one time.

Season — Rather late; 110 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

HOEG NO. 96. See Zingari.

HOEG NO. 101

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments deep red; anthers violet. Perianth lilac-purple (160-IV) with lemon-yellow throat blotched and dotted with ox blood red (94-III). Good deep color, well-shaped bloom of good substance.

Season — Late August.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, many.

HOEG NO. 116

Originator — Hoeg

Group — Lemoinei hybrid

Stock from Hoeg

Bloom — Medium size (8.5 cm.). Tube very curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers lilac. Perianth light crushed strawberry (109-I) with broad pencilings of French purple (161-I) in the throat. A very attractive clear pink, compact, wide open, but rather poor substance. Four blooms open at one time.

Season — Mid-season; 89 days.

Spike — Medium tall (85 cm.), straight, but falls over badly, a fair number of blooms (12).

Habit — Drooping, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 132

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium short. Segments unequal, connivent; the upper horizontal and broad, the lower narrower. Stamen filaments pink; anthers white with violet sutures. Perianth rosy white (8-2), lemon-yellow throat blotched with Tyrian rose (155-III), segments feathered with rose.

Season — Medium late; 105 to 110 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 136

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (11 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments white with pink tips; anthers violet. Perianth carmine-purple (156-III) with French purple dots on a yellow-green throat terminating in violet. A bright color.

Season — Medium late, late August; 101 days.

Spike — Medium tall (93 cm.), erect, blooms freely (14). Two or three spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow foliage.

Corms — Large; cormels, few.

HOEG NO. 137

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers cream. Perianth white, blotched with carmine-red (113-IV) bordered with amber-white (12). Rather compact bloom of medium good substance. This is the La Luna type of bloom, but is inferior to that variety.

Season — Mid-season; 89 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (10).

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Small; cormels, few.

HOEG NO. 174

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments ———; anthers ———. Perianth pale rosy pink (129-I) with lemon-yellow throat blotched with dull Tyrian rose (155-I). Compact bloom of medium good substance. Good clear pink. Three blooms open at one time

Season — Mid-season; 86 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOEG NO. 175. See Jack Frost.

HOFGÄRTNER STAFF

Originator Pfitzer. Intro. 1914

Group — Gandavensis

Stock from Pfitzer

Bloom — Large (12 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Perianth near geranium lake (89-11) with amber-white (12-1) throat. Segments thickly feathered with deeper geranium lake (89-1v), whitish medial lines. A handsome, rich-appearing bloom. Edges of segments somewhat ruffled. A strong opposite arrangement of blooms. A rather loose bloom of medium substance.

Season — Early to mid-season; 78 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

HOLLANDIA¹³

Originator —

Group —

Stock from Cushman

Synonyms — Mikado, Alice Roosevelt, Yellow Brenchleyensis.

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth reddish salmon (73-1) thickly suffused and feathered with shrimp pink (75-1), the lemon-yellow throat penciled with carmine-purple (156-1v). Rather loose bloom of medium good substance. Ten blooms open at one time.

Season — Mid-season; 85 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (18), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

HOSTES

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (11 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broader. Stamen filaments pinkish; anthers violet. Perianth near scarlet (87), but brighter and possesses more yellow, with a greenish yellow throat almost completely covered with geranium red (111-1v); faint feathering of drab in edges of segments. Bloom possesses good substance, but the drab markings are objectionable.

Season — Mid-season; 86 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (21 on the main, with 8 and 12 on two secondaries).

Habit — Erect, tall, rather compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few.

¹³ Cayeux et Clerc, 1908, catalogs a variety under the name of Hollandia.

HUISH TOWER*Originator* — Kelway. Intro. 1905*Group* — Kelwayi*Stock* from Kelway

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth vermilion-red (87-IV) with whitish medial lines. A whitish tinge in the throat, and faintest solferino red dash in each of lower segments. Good clear color.

Season — Mid-August; 92 days.

Spike — Tall (103 cm.), erect, very rigid, blooms freely (18), not branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Large; cormels, few.

HYDE PARK

Originator — Baer. Reg. A. G. S., 1915. Intro. Vaughan

Group — Gandavensis. May × Shakespeare

Stock from Baer; Vaughan

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white with pink tips; anthers white with lilac sutures. Perianth rosy white becoming Rose Neyron red (119-I) at outer edges of segments; lemon-yellow throat weakly shaded with deep rose-pink (120-IV); segments feathered with the same color, especially so when forced.

Season — Mid-season; 104 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (15), branched. Often two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

IDA VAN

Originator — Kunderd. Reg. A. G. S., 1914

Group — Lemoinei hybrid

Stock from Chamberlain & Gage

Bloom — Medium size (8.5 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth cardinal-red (112-I) with a few markings deep in the throat of deeper cardinal-red. Color seems to fade in the sun. Compact bloom of medium substance. Six to seven blooms open at one time.

Season — Mid-season; 97 days.

Spike — Medium tall (78 cm.), erect, a fair number of blooms (18). Two spikes borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant very well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

IDELLA

Originator — Coblentz

Group —

Stock from Coblentz

Bloom — Large (10 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broader. Stamen filaments pinkish; anthers violet. Perianth rosy pink (118-I) with an irregular fading blotch of lilac-purple (160-III). Dainty color and excellent substance.

Season — Early August; 81 days.

Spike — Tall (100 cm.), erect, a fair number of blooms, branched. Two spikes often produced per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, few.

IMPROVED BRENCHLEYENSIS*Originator* — Christy*Group* —*Stock from* Christy

Bloom — Medium size. Tube curved, stout, short. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; styles red. Perianth deep scarlet, streaked with deeper shade, blood red medial line and a faint blotch.

Season — Early September.

Spike — Medium short, erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with narrow, prominently veined leaves.

Corms — Medium size; cormels, few or none.

(Described by George J. Burt.)

IMPROVED 1900*Originator* —*Group* —*Stock from* Babcock

Bloom — Large (9-10 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper slightly reflexed and broad, the lower reflexed and narrower. Stamen filaments white; anthers dark violet. Perianth scarlet (87-iv), amber-white (12-i) throat marked with a cherry-red (91-iv) blotch. A well-open bloom of rather good substance. Does not resemble 1900 in the shape of bloom. Also distinct from Mrs. Malcolm Mackay, which has also been called Improved 1900.

Season — Mid-August; 94 days.

Spike — Tall (113 cm.), erect, a fair number of blooms (18), branched. Often two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Medium size; cormels, few.

INCENDIARY*Originator* — Lemoine*Group* — Lemoinei*Stock from* Childs

Bloom — Medium size (8 cm.). Tube medium straight, stout, short. Segments unequal, connivent; the upper somewhat hooded and broad, the lower straight and broad. Stamen filaments pink; anthers yellow with lavender sutures. Perianth near vermilion-red (87-i), color becoming lighter toward the base of the flower. Lower segment smaller than the others and blotched with French purple (161-iv), the medial line of the blotch deeper in color. Excellent substance. An attractive color. Five blooms open at one time.

Season — Late August; 105 days.

Spike — Tall (100 cm.), erect, often curved, a fair number of blooms (15), not branched.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

INDEPENDENCE*Originator* — Woodruff*Group* —*Stock from* Iowa Seed Company; Black; Wilkinson; Fryer; Woodruff

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth carthamin red (88-ii) blotched with French purple (161-ii). There are white areas at each side deep in the throat. Clear color. Compact bloom of good substance. Well arranged on spike. Five blooms open at one time.

Season — Mid-season; 95 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.



FIG. 57. INCENDIARY

pinkish; anthers violet. Perianth crimson-carmine (159-1), becoming much lighter in the center of the bloom, with white medial lines, large crimson blotches, and often feathered with rose. A good color.

INDIANA

Originator — Kelway

Group — Kelwayi

Stock from Kelway

Bloom — Medium size (8-9 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers dark violet. Perianth lilac-purple (160). Color lighter on each side of the medial line of the lower segment so that a stripe of lilac-purple is formed. Hoeg's seedling No. 11 resembles this variety in color, and is an improvement on Indiana.

Season — Mid-August; 89 days.

Spike — Medium tall (73 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Large; cormels, few.

IRENE

Originator — Childs.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (8 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments

Season — Late August; 107 days.

Spike — Medium short (67 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow foliage.

Corms — Medium size; cormels, few.

IRMA

Originator — Krelage

Group — Lemoinei

Stock from Krelage

Bloom — Medium size (8.5 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments orange-white; anthers red-violet. Perianth more russet than rosy pink (118-IV), blotch of scarlet (87-IV) with deep purple-garnet (165-IV) medial line. Good shape and excellent color, well arranged, medium good substance.

Season — Medium early; 78 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

ISAAC BUCHANAN

Originator — Childs. Cataloged 1892

Group — Gandavensis

Stock from Childs

Bloom — Medium size (7-8 cm.). Tube nearly straight, medium slender, long. Segments unequal, connivent; the upper broad, the lower reflexed and narrower. Outer row of segments larger than the inner row. Stamen filaments pinkish white; anthers white. Perianth lemon-yellow (duller than 21-I) with crimson-carmine feathering in edges of outer segments, each of lower inferior segments with Tyrian rose medial lines. This variety resembles Victory, but has more splashes in upper segments, and edges of segments are more ruffled.

Season — Mid-August to late August.

Spike — Tall (103 cm.), erect, blooms freely (24), branched.

Habit — Erect, tall, compact.

Growth — Medium good; plant well furnished with medium broad leaves.

Corms — Large; cormels, abundant though small.

I. S. HENDRICKSON

Originator — Childs. Cataloged 1904.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Synonym — Also written Isaac S. Hendrickson.

Bloom — Large (10 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broad. Stamen filaments white; anthers violet. Perianth white, the edges thickly feathered with crimson-carmine (159-I), a lilac-purple (160-III) veined throat, darker on each side of the medial line. A good shape. Childs describes the color thus: "Irregular mottling of white and bright pink; in some the pink, and in others the white predominating."

Season — Mid-August; 85 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (14 on main, with 8, 7, and 2 on secondaries).

Habit — Rather drooping, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with broad foliage.

Corms — Small; cormels, few.

JACK FROST

Originator — Hoeg. Reg. A. G. S., 1915

Group —

Stock from Hoeg

Synonym — Hoeg No. 175.

Bloom — Medium large (9 cm.). Tube nearly straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower.

Stamen filaments—————; anthers—————. Perianth pure white penciled with Tyrian rose (155-I) on an amber-white (12-I) throat. An excellent compact white bloom of good substance. Three blooms open at one time.

Season — Mid-season; 82 days.

Spike — Medium tall (100 cm.), erect, a fair number of blooms (19), two branches.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

Corms — Medium large; cormels, few.

JANE DIEULAFOY. See Jean Dieulafoy.

JAY

Originator — Childs. Reg. A. G. S.,
1914

Group — Childsii
Stock from Childs

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream-white; anthers with lilac sutures. Perianth near light carmine lake (122-II), with a lemon-yellow throat penciled and dotted with French purple (161-IV). A compact bloom of good substance, well open, handsome throat.

Season — Late August; 109 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

JEAN DIEULAFOY

Originator — Lemoine. Intro. 1894

Group — Lemoinei
Stock from Babcock; Flanagan

Synonyms — Sara, Jane Dieulafoy.

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers white. Perianth rosy white (8-IV), large geranium lake (89-IV) blotches on lower segments, upper segment suffused with salmon-carmine. There are several types of Jean Dieulafoy in the trade varying in minor ways. One type has less suffusion in upper segments, another possesses a less clearly defined blotch.

Season — Medium early; 79 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (14).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium small; cormels, medium prolific.

JEANNE D'ARC. See Reine de l'Anjou.

JESSIE¹⁹

Originator — Lemoine

Group — Lemoinei
Stock from Vaughan

Bloom — Medium size (8 cm.). Tube straight, stout, very short. Segments unequal, connivent; the upper with reflexed tips and broader than the reflexed lower segment. The two lower inferior segments reflexed around the basal segment. Stamen filaments creamy white; anthers with delicate lavender sutures; the backs being creamy are presented to the front, making them very conspicuous. Perianth blood red (93-III) with an old carmine-red (107-IV) stripe on each of the three lower segments. The stripe terminates in a yellow-green dash. Color is good, deep, and glowing. Blooms do not look up enough, however, though they possess good substance. Childs calls it "an improvement of Brenchleyensis."

Season — Early; 69 to 74 days.

¹⁹ A variety by this name was introduced by Crawford.

Spike — Tall (100 cm.), erect, a fair number of blooms (11-18).

Habit — Erect, tall, compact.

Growth — Vigorous; plant well furnished with medium broad, short, rigid leaves.

Corms — Medium size; cormels, medium few.

JESSIE PALMER

Originator — Kunderd. Intro.

Chamberlain & Gage

Group — Lemoinei hybrid

Stock from Chamberlain & Gage

Bloom — Medium size (9.5 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments white; anthers lavender. Perianth amber-white (12-1), blotched with blood-red (93-14) and suffused with rose in the upper segments. A compact bloom of good substance, well open; attractive, contrasting blotch.

Season — Mid-season; 86 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

J. L. CLUCAS

Originator — Kelway. Intro. 1909

Group — Princeps hybrid

Stock from Kelway

Bloom — Medium size (9 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers deep violet. Perianth scarlet (85), speckled with carmine (116-11) on a white throat. Good color, excellent substance.

Season — Mid-season; 83 to 90 days.

Spike — Medium tall (92 cm.), erect, a large number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, large, few.

JOHN CHURCHILL CRAGLE. See Sir John Cragle.

JOHN LEWIS CHILDS

Originator — Kelway. Intro. 1910

Group — Kelwayi

Stock from Kelway

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed. Stamen filaments light vermilion; anthers vermilion. Perianth rosy pink (118-14) with a yellow-green throat marked and penciled with Tyrian rose (155). Substance fairly good. Six blooms open at one time.

Season — Mid-season; 84 days.

Spike — Tall (100 cm.), erect, a large number of blooms (20 on main, 10 on secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, medium size, prolific.

JOHN SCHMELZER. See Evaline.

JOSEF HULOT. See Baron Joseph Hulot.

JUMBO

Originator — Prestgard, 1914

Group —

Stock from Prestgard

Bloom — Large (13 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen fila-

ments cream; anthers red-violet. Perianth carmine lake (121-11), with an amber-white (12-1) throat stippled with deep carmine lake (121-1V). A good color, excellent shape, well arranged. Five blooms open at one time. An excellent variety.

Season — Mid-season; 96 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (13). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

KARK LUZ

Originator — Pfitzer. Intro. 1909-1913

Group — Nanceianus

Stock from Pfitzer

Bloom — Medium size (8.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments red; anthers nearly black. Perianth geranium lake (89-IV), deeper at the edges. A wide penciling of near black in the throat. A good clear color. A compact bloom of medium good substance.

Season — Mid-season; 86 days.

Spike — Medium dwarf (65 cm.), erect, a fair number of blooms (12). Two spikes per corm.

Habit — Erect, dwarf, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

KATE

Originator — Childs. Cataloged 1904.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (7-10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight. Stamen filaments white with pink tips; anthers violet. Perianth rosy white (8-IV) marked with deep rose-pink, lower segments blotched with large area of carmine-purple (156-III). Color rather mixed, not very acceptable.

Season — Mid-season; 93 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (19), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Large, prolific; cormels, few.

KATHRYN. See Rosella.

KEARNEY

Originator — Childs. Cataloged 1912.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium small (8 cm.). Tube straight, slender, compact. Segments nearly equal, connivent; the upper reflexed and broad, the lower slightly broader. Stamen filaments white; anthers white with violet sutures. Perianth bright rose, white throat spotted with rose. Good clear color.

Season — Mid-season; 97 days.

Spike — Medium short (56 cm.), erect, a fair number of blooms (6-8).

Habit — Erect, medium tall, spreading.

Growth — Medium poor; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

KING GEORGE*Originator* — Kelway*Group* —*Stock from* Kelway

Bloom — Medium large. Tube straight, slender, long. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments pinkish; style white; stigma crimson-red. Perianth scarlet, base of lower segments yellowish white. Tips of segments with crimson-red streaking and penciling. Good substance. A bright color.

Season — Early; 60 days.

Spike — Medium short, very erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad, rigid foliage, extending well along the spike.

Corms — Medium size.

(Described by George J. Burt.)

KING HUMBERT*Originator* —*Group* — Childsii*Stock from* Teas

Bloom — Medium size (9 cm.). Tube straight, medium slender, medium long. Segments equal, connivent; the upper as well as the lower segments reflexed. Stamen filaments pinkish; anthers violet. Perianth Lincoln red (88-IV), medial line of each segment white, throat white striped with geranium lake (89-IV). Bloom is a good clear color, of an unusual shape due to angular segments, making it rather conspicuous.

Season — Mid-season; 82 to 90 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (12), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad, glaucous green foliage.

Corms — Small; cormels, few.

KING OF GLADIOLI*Originator* — Kelway. Intro. 1905*Group* — Kelwayi*Stock from* Kelway

Bloom — Large (13 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white tipped with vermilion; anthers red-violet. Perianth poppy color (84-IV), yellow-green throat covered partly by a dotted blotch of scarlet (85-IV). A good clear color, of good substance. Kelway remarks: "One of the finest in existence."

Season — Mid-season; 93 days.

Spike — Tall (112 cm.), erect, a fair number of blooms (17).

Habit — Erect, tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Large; cormels, small, prolific.

KING OF SCARLETS. See Prince Henry of York.**KING PHILIP***Originator* — White*Group* —*Stock from* White

Bloom — Large (9.5-13 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth scarlet (85-I) with white throat blotched with blood red (93-IV). A rather loose bloom of medium substance. Six blooms open at one time. Good arrangement on spike.

Season — Mid-season; 89 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (18), branched. Three spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large size; cormels, very prolific.

KLONDYKE

Originator — Christy. Intro. 1907,
Livingston Seed Store

Group — Lemoinei characters

Stock from Stewart; Tracy; Christy

Synonyms — Golden Queen (Stewart); Golden Nugget (Teas).

Bloom — Large (10 cm.). Tube nearly straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broader. Stamen filaments yellowish; anthers lavender. Perianth amber-white (12-III) with a large lilac-purple (160-IV) diamond-shaped blotch. Not very open, of good substance. Seven blooms open at once. Some blooms double.

Season — Mid-August; 96 days.

Spike — Tall (103 cm.), erect, a fair number of blooms (15). Often two spikes per corm.

Habit — Erect, medium tall, compact.

Growth — Very vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, very prolific.

KUNDERDI GLORY. See Glory (Kunderd).

KUNDERD'S ORANGE. See Princess of Orange.

LA CANDEUR

Originator — Souchet-Vilmorin. Intro.
1869

Group — Gandavensis

Stock from Childs

Bloom — Medium size (8 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with lilac sutures. Perianth amber-white (12-II), upper segment often tinged with rose; throat lemon-yellow (21-I), base shaded with Tyrian rose (155). Not of good form, but of excellent substance.

Season — Mid-season; 85 to 90 days.

Spike — Tall (105 cm.), erect, a large number of blooms (21).

Habit — Erect, tall, compact.

Growth — Very vigorous; plant well furnished with very broad leaves.

Corms — Medium size; cormels, few.

LACORDAIRE

Originator — Lemoine. Intro. 1895

Group — Lemoinei

Stock from Stewart

Synonym — By Stewart cataloged as Empire. Robertson and Hogg catalog an Empire introduced by Groff in 1910, apparently of same color.

Bloom — Large (12 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper narrower with edges reflexed laterally, the lower slightly reflexed. Stamen filaments white with red tips; anthers violet. Perianth scarlet (87-IV), with no markings except slight indication of white lines deep in throat. An especially good, clear, deep, rich color; well open; resembles Princeps in color except that it does not possess the Princeps blotch. It seems an excellent deep scarlet.

Season — July 20, 1913, and September 1, 1912; 95 days.

Spike — Tall (102 cm.), erect, a fair number of blooms (18).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves. Often two spikes per corm.

Corms — Medium size; cormels, few.



FIG. 58. KLONDYKE
Note the double flower at the right

LADY HOWARD DE WALDEN*Originator* — Lemoine. Intro. 1898*Group* — Lemoinei*Stock from* Cowee

Bloom — Large size (10 cm.). Tube curved, stout, short. Segments nearly equal, connivent; the upper horizontal and somewhat hooded, the lower straight. Stamen filaments light yellow; anthers yellow, rather conspicuous. Perianth cream-yellow (30-III) with large French purple (161-III) blotch bordered by lemon-yellow (20-I); a slight suffusion of carmine appears in the segments. Excellent substance. A very attractive bloom with an admirably shaped blotch. Eight blooms open at one time.

Season — Early August; 76 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (11), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with rigid, broad, silvery green leaves.

Corms — Medium large; cormels, medium prolific.

LADY WARWICK*Originator* — Kelway. Intro. 1908*Group* — Kelwayi*Stock from* Kelway

Bloom — Medium size (7.5 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broad. Stamen filaments lavender; anthers violet, with a greenish streak. Perianth nearly reddish violet (180-IV), with French purple (161-IV) medial line and lined blotch somewhat lighter than French purple. Good color, velvety appearance. Blooms well arranged on the spike.

Season — Mid-season; 90 to 100 days.

Spike — Medium tall (89 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Few, large; cormels, medium prolific.

LADY YOUNG*Originator* — Kelway. Intro. 1908*Group* — Kelwayi*Stock from* Kelway

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments rather wide; anthers blue-violet. Perianth violet-rose (154-IV) sparsely splashed with Tyrian rose (155-IV), with white medial lines. Good substance, a compact bloom, pleasing color.

Season — Late August; 92 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (21).

Habit — Erect, medium tall, compact.

Growth — Good; plant well furnished with broad, stiff, prominently veined leaves.

Corms — Large; cormels, few.

LAEL*Originator* — Childs. Cataloged 1896.

Reg. A. G. S., 1914

Group — Childsii*Stock from* Childs

Bloom — Medium size (8-9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments pink; anthers violet. Perianth soft pink with an intermixed blotch of carmine-red (113-I), surrounded by orange "having a metallic luster" (Childs). Bright, clear color.

Season — Mid-season to late; 95 to 100 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (14), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few or none.

LAFAYETTE*Originator* — Lemoine. Intro. 1894*Group* — Lemoinei*Stock* from Childs

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper rather hooded, the lower reflexed and narrower. Stamen filaments pinkish; anthers blue. Perianth dark cream (straw yellow 31-I), throat deeper cream blotched with French purple (161-III), the segments slightly suffused with Tyrian rose (155-I). A compact bloom of good substance.

Season — Mid-season; 90 days.*Spike* — Medium short (65 cm.), erect, a fair number of blooms (12).*Habit* — Erect, medium tall, compact.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium small; cormels, few.**LA FRANCE²⁰***Originator* — Souchet-Vilmorin. Intro. 1877*Group* — Gandavensis*Stock* from Waraar

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and often rather narrow. Stamen filaments pink; anthers violet. Perianth lilacy white (7-I) thickly splashed with light Tyrian rose (155-I), blotched with deeper Tyrian rose (155-IV). Compact. Medium good substance. Six blooms open at one time. Segments often crinkly edged.

Season — Mid-season to late; 111 days.*Spike* — Medium tall (85 cm.), erect, a fair number of blooms (17-25), two branches. Two spikes per corm.*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, few.**LA LORRAINE***Originator* — Souchet-Vilmorin. Intro. 1904*Group* — Gandavensis*Stock* from Vaughan

Bloom — Medium size (8-9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers reddish violet. Perianth cochineal red (83-III), lemon-yellow throat blotched with deep French purple (161-IV). A good color, a finely shaped, compact bloom of excellent substance.

Season — Mid-season; 97 days.*Spike* — Tall (105 cm.), erect, a fair number of blooms (21). Two spikes produced per corm.*Habit* — Erect, tall, spreading.*Growth* — Vigorous; plant well furnished with broad leaves.*Corms* — Large; cormels, few.**LA LUNA***Originator* — Groff. Intro. 1904.

Reg. A. G. S., 1914, Cowee

Group — Lemoinei*Stock* from Cowee

Bloom — Large (10.5 cm.). Tube slightly curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments pure white; anthers lilac. Perianth pure white to cream-yellow (30-I), with large handsome blotch of blood red (93-IV), and with a faint suffusion of rose on the upper segment. "Flowers almost round, superior petals broad and overlapping the others" (Cowee). An excellent form. Good substance. Five flowers open at one time.

Season — Mid-season; 90 to 100 days.

²⁰ Possibly this is not the same variety introduced by Vilmorin nor the variety introduced by Lemoine in 1886.

Spike — Medium tall (85 cm.), erect, a large number of blooms (19).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

LAMARCK

Originator —

Group — Lemoinei

Stock from Childs; Stewart (under name of DeCheville)

Synonym — De Cheville (Stewart)

Bloom — Medium size (8 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers greenish violet. Perianth madder lake (122-IV) with a deep lemon-yellow throat blotched with crimson-red (114-IV). Compact. Exceptional substance. Rich colors.

Season — Mid-season; 93 days.

Spike — Medium tall (76 cm.), erect, a fair number of blooms (13), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

LARGE BUFF

Originator — Kunderd

Group —

Stock from Wright; Brown

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, pink bases; anthers white, tinted lavender. Perianth pale yellow flesh (68-II) with amber-white throat (12-IV) penciled with Tyrian rose (155-IV). Buds yellow. Compact bloom of tough substance. Seven blooms open at one time.

Season — Mid-season; 82 to 84 days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (15), branched. Two or three spikes per corm.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

LARGE PURPLISH. See Evaline.

LAVENDER QUEEN

Originator — Childs. Cataloged 1912.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube nearly straight, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilacy white; anthers lavender. Perianth lilac (176-I) with large rosy magenta (169-III) blotches. Often with rosy magenta medial lines. Clear color. Good substance. "New colors, entirely distinct" (Childs).

Season — Mid-season to late; 110 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms.

Habit — Often rather drooping, tall, spreading.

Growth — Vigorous; plant medium well furnished with broad, rather drooping leaves.

Corms — Medium size; cormels, few.

LEMON DROP

Originator — Childs.

Intro. 1904.

Reg. A. G. S., 1914

Group — Lemoinei

Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal, rather hooded, and broad, the lower reflexed

and narrower. Stamen filaments white; anthers blue-lavender. Perianth yellow-green (16-1) with large French purple (161-1) blotches on the lower segments. Good shape and excellent substance.

Season — Mid-season; 72 to 86 days.

Spike — Tall (128 cm.), erect, a large number of blooms (20), branched. Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

LEONARD JOERG

Originator — Childs.

Intro. 1904.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, rose tips; anthers creamy lilac, violet sutures. Perianth violet-rose (154-III) thickly splashed and mottled with Tyrian rose (155-IV), deep yellow throat with penciled blotch of blood red. Not a clear color. An attractive throat. Good, compact spike of bloom. Good substance.

Season — Mid-season to late; 104 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

LÉON DUVAL

Originator — Lemoine. Intro. 1899

Group — Lemoinei

Stock from Cavers

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white. Perianth amber-white (12-1) blotched with fiery red (80-IV), the medial line being darker. Upper segments often rose tinted. Upper segments often somewhat laterally reflexed. Four blooms open at one time. A rather loose bloom of medium good substance.

Season — Mid-season; 83 days.

Spike — Medium dwarf (60 cm.), erect, a fair number of blooms (14), two branches.

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant medium well furnished with broad leaves.

Corms — Medium size; cormels, few.

LE POUSSIN

Originator — Souchet. Previous to 1877

Group — Gandavensis

Stock from Childs

Bloom — Medium small (6 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers red-violet. Perianth scarlet (87-II) becoming lighter toward the center, throat and medial lines amber-white, lower segments faintly marked with Tyrian rose (155-II). Compact bloom of good substance. Seven blooms open at one time.

Season — Mid-season; 92 days.

Spike — Medium short (60 cm.), erect, a fair number of blooms (14), not branched.

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium large; cormels, few.

LE RADIUM. See Reine de l'Anjou.

LE TRIOMPHE*Originator* — Brunelet*Group* — Gandavensis*Stock from* Childs

(Described from cut spike.)

Bloom — Medium large (9-10 cm.). Tube nearly straight, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac tipped; anthers violet. Perianth violet-rose (154-I) with white throat and slight splashings of Tyrian rose (155-II) in segments. Compact bloom of good substance.

Season — Mid-season.*Spike* — Medium tall, erect, a fair number of blooms (10).*Habit* — Erect, medium tall, spreading.*Growth* — Medium vigorous; plant well furnished with medium broad leaves.**LIEBESFEUER***Originator* —*Group* —*Stock from* Warneer

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet-red. Perianth scarlet (85-IV) with a carmine-red (113-IV) dash in the throat. Compact bloom of medium good substance. Nine blooms open at one time.

Season — Mid-season to late; 90 to 100 days.*Spike* — Medium tall (80 cm.), erect, a fair number of blooms (14).*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium large; cormels, few.**LILLIAN²¹***Originator* —*Group* — Lemoinei*Stock from* Woodruff

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish. Perianth amber-white (12-I) blotched with luminous blood red (93-I), the upper segments suffused with a color pinker than crushed strawberry (109-III). A variety of the Jean Dieulafoy type. Good compact bloom of medium substance. Five blooms open at one time.

Season — Mid-season; 90 days.*Spike* — Medium tall (90 cm.), erect, a fair number of blooms (14).*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium large; cormels, prolific.**LILLIAN MORRISSEY***Originator* — Kunderd. Reg. A. G. S.,

1914

Group —*Stock from* Chamberlain & Gage

Bloom — Medium size (8-9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth crimson-red (114-IV), the lower segments darker, the lip rosy white with a broad dash of crimson-red. Velvety texture, compact, medium good substance; spikes sometimes fasciated.

Season — Mid-season; 90 to 100 days.*Spike* — Medium tall (87 cm.), erect, a fair number of blooms (17 on a main, 8 and 6 on secondaries).*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, few.²¹ Kelway catalogs Lilian; it may be this variety.

LILY COE*Originator* — May*Group* —*Stock from* May

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-lavender. Perianth near carmine lake (121-1) with penciled blotch of currant red (115-1v). Good color. Segments seem to be folded back at tips a great many times; compact bloom of good substance.

Season — Mid-season; 97 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

LILY LEHMANN*Originator* — Alkemade. Intro. 1909*Group* — Gandavensis*Stock from* Velthuys

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments —; anthers —. Perianth pure white, often develops a rosy suffusion or feathering. Lower segments slightly tinged with lemon. P. Vos calls this a fine rose color, for it is apparently more pinkish in Holland. It possesses a strong *oppositiflorus* arrangement of flowers. The blooms are hardly so well formed or so well arranged as in Europa and Rochester White.

Season — Early; 84 to 90 days.

Spike — Medium tall (80 cm.), erect, though a trifle curved, a fair number of blooms (12-15), always branched.

Habit — Erect, medium tall, very spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

LITTLE BLUSH*Originator* — Childs. Intro. 1898. Reg.

A. G. S., 1914

Group — Childsii*Stock from* Michell

Bloom — Medium large (9-11 cm.). Tube straight, stout, short. Segments nearly equal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments white; anthers lavender. Perianth lilacy white (7-iv), more pinkish, often thickly splashed with lilac-rose (152-11). A dainty color. Not an especially good shape.

Season — Mid-season to late; 101 to 105 days.

Spike — Medium dwarf (68 cm.), erect, a fair number of blooms (13).

Habit — Erect, medium dwarf, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow leaves.

Corms — Large, medium number; cormels, few, small.

LITTLETON*Originator* — Groff*Group* —*Stock from* Woodruff

Bloom — Large (11 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments vermilion; anthers lilac. Perianth scarlet, the lower segments more Lincoln red; color becomes lighter in the throat; large penciled blotches of old carmine-red (107-1v) bordered by yellow-green in the throat. Color good, very bright. Good substance, well open.

Season — Mid-season; 89 to 93 days.

Spike — Tall (104 cm.), erect, a fair number of blooms (15). Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plants medium well furnished with medium narrow leaves.

Corms — Small; cormels, few.

LIVONIA

Originator—Childs. Cataloged 1904.
Reg. A. G. S., 1914
Group—Childsii
Stock from Childs

Bloom—Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments with pink tips; anthers violet. Perianth Lincoln red (88-1) with geranium red markings on a lemon-yellow throat, the blotch tipped by a dash of lemon-yellow. Compact bloom, good substance.

Season—Mid-season; 97 days.

Spike—Medium tall (87 cm.), erect, a fair number of blooms (16).

Habit—Erect, medium tall, spreading.

Growth—Vigorous; plant well furnished with medium broad leaves.

Corms—Medium size; cormels, few.

LIZZIE

Originator—Childs. Cataloged 1904.
Reg. A. G. S., 1914
Group—Childsii
Stock from Childs

Bloom—Medium size (8.5 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac; anthers violet. Perianth lilacy white (7-1) with Tyrian rose (155) blotch. The bloom is rather loose, of medium substance, and well open.

Season—Mid-season to late; 110 to 120 days.

Spike—Medium tall (70 cm.), erect, a fair number of blooms (13).

Habit—Erect, medium tall, spreading.

Growth—Vigorous; plant well furnished with medium broad leaves.

Corms—Medium size; cormels, few.

LORD ALVERSTON

Originator—Kelway. Intro. 1900
Group—Kelwayi
Stock from Kelway

Bloom—Large (10 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal with reflexed edges, broader than the lower reflexed segment. Stamen filaments red; anthers violet. Perianth turkey red (92-IV); edges of the outer segments darker, a blood red; inner segments carmine (116-11). Slight, inconspicuous pencilings of carmine in the throat. Bloom is well open and of a good clear, deep color. The intense color of the flower pervades the whole plant making spike and bracts bronze, with the leaves a deep green. Five to six blooms open at one time.

Season—Early; 72 to 80 days.

Spike—Medium tall (70 cm.), erect, a fair number of blooms (15), branched. Branches often blooming after the main spike.

Habit—Erect, medium tall, spreading.

Growth—Medium vigorous; plant furnished with medium broad, rather drooping leaves.

Corms—Medium size; cormels, few or none.

LOUIS WALTER

Originator—Pfitzer. Intro. 1914
Group—Gandavensis
Stock from Pfitzer

Bloom—Large (12 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers red-violet. Perianth carmine-red (113-1) feathered lighter (nearly white) and darker (deep blood red) and blotched with lilac-purple (160-IV) cut by a light medial line. Not a clear color. A rather loose showy bloom of medium substance. Five blooms open at one time.

Season—Mid-season; 89 days.

Spike—Medium tall (90 cm.), erect, a fair number of blooms (16).

Habit—Erect, medium tall, spreading.

Growth—Vigorous; plant well furnished with medium broad leaves.

Corms—Medium size; cormels, few.

LOVELINESS

Originator — Van Konijnenburg. Intro.
1912
Group —
Stock from Zeestraten

Bloom — Medium size (9 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers white, violet sutures. Perianth pale reddish salmon (73-I), amber-white (12-IV) throat penciled with near rosy magenta (169-IV) with a slight feathering of rose in segments. A good light color, excellent form, compact, and of fairly good substance. Eleven blooms open at one time. Blooms face around the spike.

Season — Mid-season; 92 days.

Spike — Medium tall (90 cm.), erect, a large number of blooms (22), two branches.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

LUCEIL. See Miss Luceil.

LUCILLE

Originator — Stewart. Exhibited 1909.
Intro. 1912
Group —
Stock from Stewart

Bloom — Medium size (8 cm.). Tube slightly curved, stout, short. Segments unequal, connivent; the upper reflexed and broad, the lower slightly reflexed and narrower. Stamen filaments pinkish; anthers light lavender. Perianth crushed strawberry (109-I) with a sulfur-yellow throat very faintly dotted with crimson-carmine. Compact, well-formed, daintily colored bloom.

Season — Mid-season; 89 to 92 days.

Spike — Tall (108 cm.), erect, a large number of blooms (23 on the main spike, 8 on a secondary). Two spikes often occur per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad, rather drooping leaves.

Corms — Medium size; cormels, large, few.

LUCRETIA²²

Originator — Warnaar
Group —
Stock from Warnaar

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper hooded and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilacy. Perianth creamy white (10-I) with lilac-purple (160-IV) blotches bordered by a slight cream tinting; there are often suffusions of lilac. Compact, of medium good substance, rather bell-shaped, and not well open. Six blooms open at once.

Season — Early August; 80 days.

Spike — Tall (120 cm.), erect, a fair number of blooms (20 on a main, with 13 and 5 on secondaries). Often three spikes per corm.

Habit — Medium tall, erect, spreading.

Growth — Slender, vigorous; plant well furnished with medium slender foliage.

Corms — Medium size; cormels, many.

LUSTROUS

Originator — Miller
Group — Childsii or Gandavensis
Stock from Childs

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth poppy color (84-IV), lemon-yellow throat slightly dotted with Tyrian rose (155-IV) with lighter medial lines. A good color, bloom well open. Five blooms open at one time.

²² Krelage, 1905, catalogs an early, dwarf variety of this name.

Season — Mid-season; 88 days.

Spike — Tall (105 cm.), erect, a large number of blooms (22), three branches. Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

LYDIA

Originator — Childs. Intro. 1904.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Perianth violet-rose (154-I) suffused with crimson-carmine, the lower segments marked and striped with crimson-carmine, medial lines of currant red (115-IV). Color rather too mottled.

Season — Mid-season; 95 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms (16).

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few or none.

McALPIN

Originator —

Group —

Stock from Tracy

Bloom — Medium size (8.5 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments rosy white; anthers red-violet. Perianth carmine (116-I) with an amber-white (12-I) throat blotched with carmine-purple (156-IV). A good color and shape, excellent substance. Four blooms open at one time.

Season — Mid-season; 93 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (16). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

MADAM BUTTERFLY

Originator — Groff. Intro. Tracy

Group — Gandavensis

Stock from Brown; Tracy

Synonym — Yellow Jacket (?).

Bloom — Medium size (9 cm.). Tube slightly curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers light lavender. Perianth amber-yellow (28-IV) with a pinkish cast, often thickly feathered with salmon-carmine (125-I) with lines of French purple (161-IV) on deep yellow throat. Bloom rather compact, of good substance. Five blooms open at one time.

Season — Mid-season.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (11). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Small; cormels, few or none.

MADAME BRUNELET

Originator — Vilmorin-Andrieux. Intro. 1902

Group — Gandavensis

Stock from Vaughan

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower.

Stamen filaments pinkish; anthers violet. Perianth pale light lilac (187-1) feathered and blotched with magenta (182-1), blotch is cut by a lemon-white medial line. A rather compact bloom.

Season — Mid-season; 90 days.

Spike — Medium tall (75 cm.), erect, blooms freely (20), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

MADAME LEMOINIER

Originator — Lemoine. Previous to 1894

Group — Lemoinei

Stock from Childs

Synonym — Easter.

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments pinkish; anthers lilac. Perianth greenish white (115-IV), with a large blotch of ox blood red (94-II) on lower segments bordered by pale yellow-green. Bloom possesses good shape and rather good substance, but the blotch does not have a very acceptable color. Seems excellent for indoor culture.

Season — Mid-season; 75 to 85 days.

Spike — Medium tall (75 cm.), erect, slender, a fair number of blooms (13-15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad rigid leaves.

Corms — Medium large; cormels.

MADAME MONNERET

Originator — Souchet. Previous to 1877

Group — Gandavensis

Stock from Moore

Bloom — Medium size (8 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments —; anthers —. Perianth reddish old rose (142-I) with a broad dash of French purple (161-I) in the throat. A rather compact bloom of medium good substance. Six blooms open at one time.

Season — Mid-season to late; 104 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MADHI

Originator —

Group — Gandavensis

Stock from Childs

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers violet. Perianth ox blood red becoming lighter toward the throat, feathered with drab (light and dark), throat lemon-yellow. Compact bloom of good substance, color fairly acceptable. Five blooms open at one time.

Season — Medium late; 100 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (16), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few or none.

MAGENTA. See Mrs. G. W. Moulton.

MAGNATE*Originator* — Burchett*Group* —*Stock from* Burchett

Bloom — Large (12 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers almost black. Perianth bright scarlet, throat striped with Tyrian rose (155-III), the lower segments slightly deeper in color — a distinct tint.

Season — Medium late; 103 days.

Spike — Tall (114 cm.), erect, a large number of blooms (23). Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MAGNIFICUS*Originator* — Souchet-Vilmorin.

Intro. 1886

Group — Gandavensis*Stock from* Childs

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth Lincoln red (88-II) with a lemon-yellow throat dotted and penciled with carmine-purple (156-IV). Compact bloom of good shape and good substance. Five blooms open at one time.

Season — Medium tall (75 cm.), erect, a fair number of blooms (12). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

MAHARAJAH OF KHOLAPUR*Originator* — Kelway. Intro. 1903*Group* — Kelwayi*Stock from* Kelway

Bloom — Medium size (9 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac-white; anthers violet. Perianth lighter than strawberry red (110-I), throat and medial lines of lower segments greenish yellow.

Season — Medium late; 102 days.

Spike — Medium tall (76 cm.), erect, a large number of blooms (20).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few or none.

MAIZE*Originator* — Umpleby. Reg. A. G. S., 1914, Tracy*Group* —*Stock from* Tracy; Umpleby

Synonym — Identical with Umpleby No. 5. A segregation from a Farquhar hybrid sold by Umpleby to Tracy.

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments nearly equal, connivent; the upper horizontal, the lower nearly straight. Stamen filaments white; anthers lavender. Perianth amber-yellow (28-I) with a well-defined, dull crimson blotch on lower lip. Bloom very neat in appearance. Four to five blooms open at one time.

Season — Early to mid-season; 74 days.

Spike — Medium tall (78 cm.), very erect, blooms freely, branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, large, prolific.

MAJOR RHEINHARDT*Originator* — Pfitzer. Intro. 1911*Group* — Gandavensis*Stock* from Pfitzer

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower broad and slightly reflexed. Stamen filaments red; anthers violet. Perianth blood red (93-IV) with darker shades in the throat. Color deep, excellent.

Season — Late; 111 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (18 on main, 8 on a secondary).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad, rather drooping leaves.

Corms — Medium size; cormels, few.

MAPLESHADE

Originator — Christy. Seedling of 1903

Parentage — Same as America (May X Madam Auber)

Stock from Christy

Bloom — Large (9.5 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments pink; anthers violet. Perianth mauve-rose (153-II) with Tyrian rose (155-IV) dashes and veinings in the throat. Very much resembles America that is well grown. Mapleshade is larger and a better color; the flowers are wide open but of only medium substance, seem more fragile than those of America. Christy writes that Van Fleet, Burbank, and Stewart think this variety better than America. Five blooms open at one time.

Season — About the same as that of America, mid-season; 90 to 100 days.

Spike — Medium tall (93 cm.), sometimes curved, a fair number of blooms (18-23), longer than that of America.

Habit — Rather drooping, "as tall as any *Childsii*," spreading.

Growth — Vigorous; plant well furnished with long, medium broad leaves, broader than those of America.

Corms — Large; cormels, large, prolific, inferior to those of America.

MARC MICHELI

Originator — Lemoine. Intro. 1896

Group — Lemoinei

Stock from Childs

Bloom — Small (6.7 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac-white; anthers lilac. Perianth lilacy white or very light lavender, the throat almost covered by large deep carmine-violet (174-IV) blotches, each blotch with a small dash of yellow running partly through it. Compact bloom, good substance.

Season — Mid-season; 93 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MARGARET

Originator —

Group —

Stock from Vaughan; Crawford

Bloom — Medium size (9 cm.). Tube nearly straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac-white; anthers violet. Perianth strawberry red (110) with whitish medial line and yellowish white throat, edged with carmine and splashed with same color on back. Striking color contrast, good substance.

Season — Mid-season to late; 105 to 110 days.

Spike — Tall (105 cm.), erect, a large number of blooms (23).

Habit — Erect, tall, spreading.

Growth — Very vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

MARIANNE

Originator — Pfitzer. Intro. 1910

Group — Gandavensis, but possessing

Lemoinei blotch

Stock from Pfitzer

Bloom — Medium size (7.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers white with violet sutures. Perianth white with a large amaranth red (168-III) blotch and an amber-white tinting of lower segment. A compact bloom of medium good substance.

Season — Mid-season; 105 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MARIE LEMOINE

Originator — Lemoine

Group — Lemoinei

Stock from Boddington

Synonym — Mary Lemoine.

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers cream. Perianth yellowish white (13-II) blotched with large area of French purple (161-IV). Buds when first opening and the lower lip when open are yellow-green (16-I). Attractive blotch. Bell-shaped bloom of excellent substance.

Season — Medium early; 78 days.

Spike — Medium tall (85 cm.), slender, erect, a fair number of blooms (13), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MARION

Originator — Childs. Intro. 1904.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers white, violet sutures. Perianth lilacy white (7) feathered with lightest rose, lined with blotch of Tyrian rose, shaded at edge by lemon-yellow. Compact bloom of medium substance.

Season — Late; 115 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

MARY FENNEL

Originator — Kunderd. Reg. A. G. S.,

1914

Group —

Stock from Chamberlain & Gage

Synonyms — Charlotte; Giant Lavender.

Bloom — Medium size (8 cm.). Tube curved, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers lilac with violet sutures. Perianth pure mauve (181-II), lower segments primrose yellow, penciled and suffused dimly with pure mauve. Well-open, compact bloom of medium substance. Three to five blooms open at one time.

Season — Mid-season; 95 days.

Spike — Medium tall (71 cm.), erect, a fair number of blooms (15), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

MARY LEMOINE. See Marie Lemoine.

MASQUE DE FER

Originator — Lemoine. Previous to 1894

Group — Lemoinei

Stock from Childs

(Described from cut spike.)

Bloom — Small (6-7 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments white; anthers lilac, nearly white. Perianth deep blood red, near ox blood red (94-IV), lower lip with slight dash of yellow. A rich color. Bloom compact and of good substance, but rather small, not showy.

Season —

Spike — Medium tall (85 cm.), erect, slender, a fair number of blooms (19).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

MASTODON

Originator — Van Fleet

Group — Princeps hybrid

Stock from Vaughan

Bloom — Very large. Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; styles red. Perianth vermilion-red, blotched with blood red with yellow streakings at base and yellow medial line. Only about five blooms open at one time, but they are so large that they present a good appearance. About the finest of its color.

Season — September 1, 1911.

Spike — Tall, erect, free blooming.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

(Described by George J. Burt.)

MAY

Originator — Crawford

Group — Gandavensis

Stock from Teas; Umpleby; Childs

Bloom — Medium size (8 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper rather reflexed and broad, the lower reflexed and narrow. Stamen filaments white; anthers yellow, violet sutures. Perianth rosy white finely flaked with crimson-carmine, throat amber-yellow (28) marked lightly with Tyrian rose (155-II). Good substance, a good white.

Season — Mid-season to late; 105 days.

Spike — Medium tall (98 cm.), erect, a large number of blooms (23 on main, 10 on secondary). Often two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plants well furnished with medium broad leaves.

Corms — Medium large; cormels, few, small.

MAYOR

Originator — Childs. Cataloged 1912

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Large (10.5-11 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper with reflexed tips and narrower, the lower reflexed

and broad. Stamen filaments white, pink tips; anthers violet. Perianth near pure red (less blue than 159-I), lower lip stippled with lilac-purple (160-IV). Catalogs call the color rich purple-rose. Well-open, compact bloom of medium substance.

Season — Mid-season; 83 to 90 days.

Spike — Medium tall (84 cm.), erect, a fair number of blooms (17 on main, 7 and 6 on secondaries).

Habit — Rather drooping, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow foliage.

Corms — Medium large; cormels, few or none.

MAY'S CARDINAL. See Cardinal (May).

MEADOWVALE

Originator — Cowee. Intro. 1900.

Reg. A. G. S., 1914, Cowee

Group — Gandavensis

Stock from Stewart; Cowee

Synonyms — Purity (Stewart), exhibited 1910; Canada.

Bloom — Medium size (7-8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with lavender sutures. Perianth rosy white (8-III) with crimson-carmine (159-I) lines in the throat and also areas deep in the throat.

Season — Mid-season; 90 days.

Spike — Medium tall (98 cm.), erect, a large number of blooms (19).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium to narrow leaves.

Corms — Medium size; cormels, few.

MEHLMANN NO. 326

Originator — Mehlmann

Group —

Stock from Mehlmann

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal often reflexed and broad, the lower reflexed and narrower. Stamen filaments pink; anthers lilac. Perianth light carmine lake (121-IV); throat lemon-yellow blotched with turkey red (92-IV). A dainty color, bloom well open. Five blooms open at one time; blooms face various directions.

Season — Mid-season to late; 90 to 100 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (12). Often three spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage.

Corms — Medium size; cormels, few.

MEHLMANN NO. 329

Originator — Mehlmann

Group —

Stock from Mehlmann

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth lilac-purple (darker than 160-IV). Wide-open, compact bloom of excellent substance, rich color.

Season — Mid-season to late; 100 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (10). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few or none.

MELROSE²³

Originator — Childs. Intro. 1904.
Reg. A. G. S., 1914
Group — Childsii
Stock from Childs

Bloom — Large (11 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments pink; anthers violet. Perianth white, flaked very sparsely with carmine; throat with crimson-carmine blotch. Good color, substance does not seem the best.

Season — Mid-season to late; 100 days.

Spike — Tall (103 cm.), erect, a fair number of blooms (13). Two spikes per corm. Bracts tinged with bronze.

Habit — Erect, tall, medium compact.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Large, prolific; cormels, few or none.

MEPHISTOPHELES

Originator — Lemoine
Group — Lemoinei hybrid
Stock from Chamberlain & Gage

Bloom — Medium size (8 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments pinkish; anthers violet. Perianth bright cardinal-red (112-IV) blotched with carmine-red on all segments, bordered by broad yellow bands. Compact bloom of good substance.

Season — Mid-season; 97 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (12), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

METEOR²⁴

Originator — Pfitzer. Intro. 1906
Group — Lemoinei
Stock from Pfitzer

Bloom — Medium size (8 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, red tips; anthers dirty red. Perianth cochineal red (83-1) blotched with purple-garnet (165-IV) with a mere dash of white at the medial line. The bloom is compact and of medium good substance. Five blooms open at one time. A bright and showy bloom.

Season — Mid-season; 89 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (15).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MICHIGAN²⁵

Originator — Stewart. Intro. 1912
Group —
Stock from Stewart

Bloom — Medium size (9 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and often broader. Stamen filaments pinkish; anthers violet. Perianth Lincoln red (88-I, more red than reddish old rose 142-IV). Might be called a rose-pink. Well-open bloom with excellent arrangement.

Season — Medium late; 102 days.

Spike — Rather tall (97 cm.), erect, a fair number of blooms (17). Two spikes per corm.

Habit — Erect, tall, compact.

²³ Lemoine also catalogs a variety by this name.

²⁴ Kelway, Vos, and Childs each catalog a variety by this name. Meteor (Vos) has been changed by the Haarlem Floral Committee to Red Emperor.

²⁵ Kelway catalogs a variety of this name.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MIDSHIPMAN

Originator — White

Group —

Stock from White

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal with abruptly reflexed edges, the lower narrower with abruptly reflexed edges. Stamen filaments reddish; anthers violet. Perianth somewhat like old blood red (103), with a violet tinge in outside of segments, yellow-green line covered by old blood red markings. An unusual looking bloom, has a rather closed appearance.

Season — Mid-season; 92 to 99 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15 on main and 4 on secondaries).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, prolific.

MIDSUMMER QUEEN

Originator — Christy

Group —

Stock from Christy

Bloom — Medium to small (6-8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal, the lower straight and broader. Stamen filaments lilacy white; anthers lavender. Perianth mauve-rose (153-I) blotched with amaranth red (168-IV), with yellow-green medial lines through the tip of the blotch; segments somewhat suffused with violet-rose (154-I). Color would be best described as rosy or lilacy white. Bloom compact, of medium substance. Should be a good landscape variety.

Season — Medium early; 72 to 80 days.

Spike — Medium tall (95 cm.), curved, a fair number of blooms (20), two branches. Usually two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MIKADO. See Hollandia.

MILDRED

Originator — May

Group —

Stock from May

Bloom — Medium size (9.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers red-violet. Perianth carthamin red (88-I) feathered and flecked deeper (88-IV), geranium lake (89-IV) in the throat. A rather loose bloom of medium substance. The feathering of the segments seems objectionable.

Season — Mid-season; 87 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

MINNEHAHA

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (13 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and rather narrow, the lower broader. Stamen filaments red; anthers violet. Perianth geranium red (resembles III-IV)

shaded deeper in throat, slightly intermixed with white. Almost a self color, a good deep red. An excellent variety. Seven blooms open at one time.

Season — Mid-season to late; 104 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (17). Two spikes per corm.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, prolific.

MINNESOTA

Originator — Ruff

Group —

Stock from Ruff

Synonym — Sterling.

Bloom — Medium size (9 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth amber-white (12-1) with pale suffusion of rose and flamed blotch of crimson-carmine (114-IV and deeper). Compact bloom of excellent, tough substance. Good color. Five blooms open at one time.

Season — Mid-season; 76 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (16), not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, prolific.

MISS KELWAY

Originator — Kelway. Intro. 1905

Group — July Flowering

Stock from Kelway

Bloom — Medium size (9-10 cm.). Tube curved, slender, long. Segments unequal, the upper and lower segments quite separate; the upper slightly reflexed and narrower, the lower reflexed. Stamen filaments white with pink tips; anthers violet. Perianth mauve-rose (153-II) thickly splashed with lilac-rose (152-III); each of the five lower segments have yellow-green centers and bases, the lower segments with pencillings of magenta (169-I). A rather decorative variety though the colors are not clear.

Season — Mid-season; 75 to 85 days.

Spike — Medium tall (90 cm.), erect, a large number of blooms (17 on main). The main decorative value of this variety lies in the fact that it generally bears three branches of approximately 11 blooms each.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves.

Corms — Large, prolific; cormels, few.

MISS LUCEIL

Originator —

Group —

Stock from Wright

Synonym — Luceil.

Bloom — Medium size (9 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers white or greenish. Perianth lighter than mauve-rose (153-I) with amber-white throat (12-1) marked at base and at sides with Tyrian rose (155-IV). A rather compact bloom of medium good substance. Blooms frequently on all sides of the spikes.

Season — Mid-season; 81 to 85 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (19), two branches. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.



FIG. 59. MRS. A. C. BEAL

MISS ZENA DARE

Originator — Kelway. Intro. 1905
Group — Gandavensis
Stock from Kelway

Bloom — Small (7 cm.). Tube curved, slender, medium long. Segments nearly equal, connivent; the upper reflexed and narrow, the lower reflexed and broader. Stamen filaments white; anthers lavender. Perianth creamy white (10-IV), the lower segments yellow-green (17-I) fading to creamy white, striped with dark old rose (149-IV) also with the faintest splashings of carmine-purple (159-IV) at tips of outer segments. Dainty color.

Season — Mid-season; 88 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

MRS. A. C. BEAL

Originator — Umpleby. Reg. A. G. S.,
 1915
Group — Lemoinei hybrid
Stock from Umpleby

Synonym — Umpleby No. 385.

Bloom — Large (12 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers light lavender. Perianth rosy white blotched with Lincoln red (88-I) in which the medial line shades to old carmine-red (107-IV). A fine color and an attractive blotch. Four blooms open at one time. The buds are very salmony when first opening. Flowers well arranged.

Season — Early; 70 days.

Spike — Tall (93 cm.), erect, often curved, a fair number of blooms (16 on main and 9 on secondary). Two or three spikes borne per corm. Because of curved spike it does not pack well in shipping.

Habit — Often rather drooping, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

MRS. BEECHER

Originator — Childs. Reg. A. G. S.,
 1914
Group — Childsii
Stock from Childs

Synonym — Also cataloged as Mrs. H. W. Beecher.

Bloom — Medium size (9 cm.). Tube nearly straight, slender, long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and broad. Stamen filaments reddish; style reddish. Perianth cardinal-red (112-II) with white throat streaked with carmine-red (113). Good color, well open. Two or three blooms open at one time.

Season — Mid-season to late; 100 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms.

Habit — Erect, rather dwarf, compact.

Growth — Medium vigorous; plant well furnished with narrow leaves.

Corms — Medium size; cormels, few.

MRS. FRANCIS KING

Originator — Coblenz
Group — Nanceianus (Gage); Childsii
 (Miller, Hoeg, and Robertson)
Stock from Teas; Tracy

Bloom — Large (12 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal with edges slightly incurved, the lower almost straight and narrower. Stamen filaments white with red bases; anthers nearly white with blue suture lines. Perianth vermilion-red (87-II) sparsely splashed with deeper vermilion-red (87-III), and often penciled to form a blotch on two lower segments of vermilion-red. Bloom well open and the standard of substance, shape excellent, and the color clear. Six blooms open at one time.

Season — Mid-season; 80 days.

Spike — Tall (120 cm.), erect, a fair number of blooms (18), branched. Three spikes often borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific, large.



FIG. 60. MRS. FRANCIS KING

flexed and narrower. Stamen filaments reddish tips; anthers violet. Perianth lilac-purple (160-IV), throat lemon-yellow marked with French purple (161-IV). A fine velvety deep red. Some of the blooms are slightly double. A compact bloom of good substance. Five blooms open at one time.

Season — Mid-season; 90 days.

Spike — Tall (100 cm.), very erect, a large number of blooms. Two spikes per corm.

Habit — Erect, tall, rather compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, prolific.

MRS. FRANK PENDLETON

Originator — Kunderd.

Reg. A. G. S., 1914

Group — Nanceianus

Stock from Gage

Synonym — Formerly the word *Jr.* was added to the name.

Bloom — Large (12 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish white; anthers violet. Perianth rosy pink (118-I-II) with a large ox blood red (94-II) blotch. Excellent color, good size, good substance, well arranged. Four or five blooms open at once.

Season — Early August; 83 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (16 and 6).

Habit — Erect, tall, spreading.

Growth — Good; plant well furnished with broad leaves.

Corms — Medium large; cormels, few.

MRS. G. W. MOULTON

Originator — Kunderd.

Reg. A. G. S., 1914

Group —

Stock from Chamberlain & Gage

Synonym — Magenta.

Bloom — Medium size (9 cm.).

Tube curved, stout, short.

Segments unequal, connivent; the upper horizontal

and broad, the lower

MRS. G. W. WILLOCK*Originator* — Kelway*Group* — July Flowering*Stock from* Kelway

Bloom — Large. Tube curved, stout, short. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; style yellow. Perianth lilac-white at the outer edge deepening to rosy pink, lower segments with solferino red splashings on canary-yellow throat with French purple medial line.

Season — August 9, 1911.*Spike* — Medium tall, erect, a fair number of blooms.*Habit* — Erect, medium tall, compact.*Growth* — Vigorous; plant well furnished with medium narrow leaves.

(Described by George J. Burt.)

MRS. H. W. BEECHER.

See Mrs. Beecher.

MRS. JAMES LANCASTERSHIRE. See Fairy.**MRS. LA MANCE***Originator* — Childs.

Reg. A. G. S., 1914

Group — Childsii*Stock from* Childs

Bloom — Medium large (10 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth lilac white (7-1) with intermixed blotch of Tyrian rose (155-III). Compact bloom of medium substance. Clear color.

Season — Medium late; 103 days.*Spike* — Medium tall (83 cm.), erect, a fair number of blooms (10).*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, few.

FIG. 61. MRS. FRANK PENDLETON

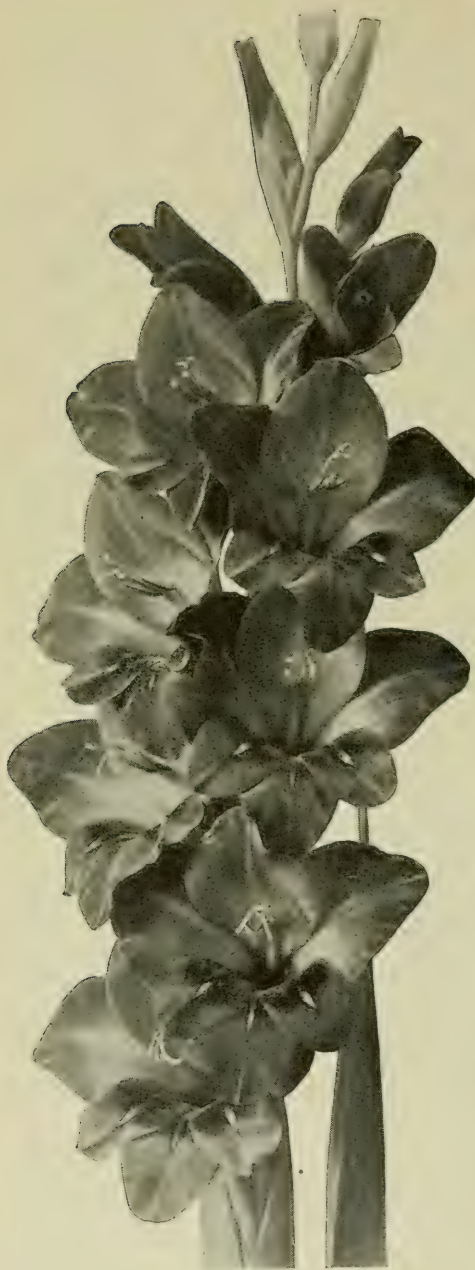


FIG. 62. MRS. MILLINS

MRS. MILLINS*Originator* — White*Group* — Lemoinei*Stock from* White*

Bloom — Medium size (8 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers dark red. Perianth purple-brown (more red than 160-II), throat purple-garnet (165-IV) with a small yellow dash. A dark velvety color. Six blooms open at one time.

Season — Mid-season; 104 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (14), branched. Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

MRS. MONTAGUE CHAMBERLAIN

Originator — Kunderd. Intro. Chamberlain & Gage. Reg. A. G. S., 1914

Group —
Stock from Chamberlain & Gage

Bloom — Large (11 cm.). Tube slightly curved, medium stout, medium short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and slightly narrower. Stamen filaments white; anthers lilac. Perianth pure white, Tyrian rose (155) shading deep in the throat, each segment penciled on medial lines. A compact bloom of medium substance. Exquisite shape, crystalline color, well-open bloom. Good commercial color.

Season — Late September; 105 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (18), not branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

MRS. R. A. GOLDSMITH*Originator* — Childs. Reg. A. G. S.,

1914

Group — Childsii*Stock from* Childs

Bloom — Medium size (9 cm.). Tube very crooked, medium slender, medium long. Segments unequal, connivent; the upper reflexed and somewhat broader, the lower reflexed. Stamen filaments white; anthers violet. Perianth nearly madder lake (122–III), white throat spotted and dashed sparsely with madder lake (122–IV).

Season — Rather late; III days.

Spike — Medium tall (95 cm.), erect, a fair number of blooms (15).

Habit — Rather drooping, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MRS. SCOTT DURAND*Originator* — Coblentz*Group* —*Stock from* Vaughan

Synonym — Coblentz No. 304.

Bloom — Medium large (10 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, pink tipped; anthers reddish violet. Perianth bright scarlet (87–IV) with old blood red (103–IV) blotches on lower segments and yellow-green medial lines. Excellent substance, good shape.

Season — Mid-season; 83 to 93 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (17 on main, 6 on a branch).

Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium large; cormels, prolific.

MRS. WATT*Originator* — Crawford*Group* —*Stock from* Crawford

Bloom — Medium size (8 cm.). Tube straight, medium slender, medium long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments red; styles lighter. Perianth crimson-red (114–III) with a lighter medial line on lower segment, and a light base of inferior, lower segment. The color is an excellent deep red. Blooms have good substance and are well arranged on a neat spike. Burt, in 1911, states that it is the best red in the plot. Four blooms open at once.

Season — Mid-season, early August; 90 to 95 days.

Spike — Medium tall (92 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with erect, medium broad, blue-green leaves.

Corms — Medium size; cormels, though small are prolific.

MRS. W. E. FRYER*Originator* — Kunderd*Group* —*Stock from* Fryer; Wright (Red Canna)

Synonym — Red Canna (Wright).

Bloom — Large (11 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments scarlet; anthers red-violet. Perianth poppy red (84–I) with amber-white (12–I) throat, penciled to form a blotch of crimson-red (114–IV). A bright-colored, wide-open, compact bloom of medium good substance.

Season — Mid-season; 90 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (16), two branches.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

MRS. W. L. THOMPSON*Originator* — Crawford*Group* —*Stock from* Crawford

Bloom — Medium size (9 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed segments; the lower segments smaller than the upper. Stamen filaments lilacy white; anthers white. Perianth deep rose-pink (120-I) rather deeply splashed with deep rose-pink (120-IV), with a white medial line and a yellow-green throat. Flowers are well arranged. Colors dainty. Eight blooms open at once.

Season — Mid-season; 80 to 85 days.

Spike — Tall (100 cm.), erect, free blooming (20 on main, 8 on secondary), often two branches.

Habit — Erect, tall, very spreading.

Growth — Good; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, small, prolific.

MRS. W. N. BIRD*Originator* — Childs. Reg. A. G. S.,

1914

Group — Childsii*Stock from* Childs

Bloom — Medium size (7-8 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth carmine (116-I) or lilac-rose (Childs) with lines of lilac-purple (160-II) on a lemon-yellow throat. Compact, good substance. A good rose-colored variety. Four blooms open at one time.

Season — Mid-season; 89 days.

Spike — Medium tall (77 cm.), erect, a fair number of blooms (14), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

MOHONK*Originator* — Childs. Reg. A. G. S.,

1914

Group — Childsii*Stock from* Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth scarlet, throat white stippled with geranium lake (89-IV). Good shape and color. Childs calls the color "deep, dark pink."

Season — Medium to late; 116 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

MONGOLIAN*Originator* — Kunderd. Intro. Brown,

1913

Group —*Stock from* Brown

Bloom — Medium size (9 cm.). Tube nearly straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellowish white; anthers lilac. Perianth lemon-yellow (21-I) with dull Tyrian rose (155-I) pencilings and a small blotch, slight feathering of rose in segments. A compact bloom of medium good substance. Five to seven blooms open at one time out of doors, and eight to twelve in water.

Season — Early to mid-season.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — ———; cormels, ———.

MONSIEUR A. BRONGNIART*Originator* — Bruñelet*Group* — Gandavensis*Stock from* Chamberlain & Gage

Bloom — Medium size (9 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers pinkish with violet sutures. Perianth deep rose-pink (120-1) splashed with Lincoln red (88-1), throat lemon-white. Compact bloom of good substance, dainty color, and good shape.

Season — Mid-season to late; 105 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (17), branched. Two spikes per corm.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few or none.

MONSTER*Originator* — Childs. Reg. A. G. S., 1914*Group* — Childsii*Stock from* Childs

Bloom — Large (12.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and very broad, the lower reflexed and much narrower. Stamen filaments pink; anthers white with violet sutures. Perianth "pink, mottled salmon with a blue tinge." A good pink. Rather loose. Good substance for so large a bloom.

Season — Mid-season to late; 103 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

MORNING GLORY*Originator* — Warnaar*Group* — Lemoinei*Stock from* Warnaar

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal, hooded, and broad, the lower slightly reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth scarlet (85-IV) blotched with crimson-red (114-IV) with a deeper medial line and the slightest dash of yellow on the medial line of the blotch. Compact and of excellent substance. Well arranged on the spike.

Season — Mid-season; 75 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (20), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow, short, rigid leaves.

Corms — Medium size; cormels, many.

MOTTLED AMERICA*Originator* — Kunderd. Reg. A. G. S., 1914*Group* — Lemoinei hybrid*Stock from* Wright

Bloom — Medium size (8 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish white; anthers lilac. Perianth lighter than Rose Neyron red (119-1), thickly feathered with deeper than Rose Neyron red (119-1), throat intermixed carmine-violet (174-1). A somewhat loose bloom of medium good substance. Not the shape of America, nor does it in any way resemble America.

Season — Mid-season; 90 to 100 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

MURIEL*Originator* — Pfitzer*Group* — Lemoinei or nanceianus*Stock* from Pfitzer

Bloom — Medium size (8.5 cm.). Tube curved, stout. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers lilac with violet sutures. Perianth pale lilac-rose (178-I) thickly suffused, feathered, and blotched with plum-violet (172-IV). A compact bloom of exceptional substance. Color hardly pleasing. Blooms face downward.

Season — Early to mid-season; 74 days.

Spike — Tall (115 cm.), erect, a large number of blooms (20), branched.

Habit — Erect, tall, compact.

Growth — Very vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

NANCY RAY*Originator* — Coblentz*Group* —*Stock* from Coblentz

Bloom — Large (12 cm.). Tube straight, very stout, medium short. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white with crimson bases; anthers lavender to violet. Perianth rosy white (8-IV), inner segments pale pink (135-III), the lower segments blotched with crimson-red, often throat is not blotched and merely has a small area of color deep in the throat. Bloom symmetrical, that is, it can hardly be separated into upper and lower segments. Remarkable substance. Excellent light color.

Season — Medium early; 74 days.

Spike — Medium tall (94 cm.), erect, a large number of blooms (19 on main, 16 on secondary), usually two branches.

Habit — Erect, tall, medium spreading.

Growth — Vigorous; plant well furnished with broad, clean, silver-green foliage.

Corms — Medium large; cormels, small, prolific.

NAPOLEON. See Burrel.**NEGERFÜRST***Originator* — Pfitzer. Intro. 1905*Group* — Nanceianus*Stock* from Boddington

Bloom — Medium size (9 cm.). Tube nearly straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, red tips; anthers deep red-violet. Perianth deep crimson-red (114-IV), deeper at edges and feathered almost black; throat amber-white (12-I) intermixed with crimson-red (114-I), often with lighter medial lines. Compact, handsome bloom of velvety texture and tough substance. Six blooms open at one time.

Season — Mid-season; 89 days.

Spike — Tall (110 cm.), erect, a large number of blooms (21).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

NELLIE*Originator* — Coblentz*Group* —*Stock* from Coblentz

Bloom — Large (10 cm.). Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers almost black. Perianth scarlet (85-III), throat lemon-yellow (21-II) thickly splashed with geranium lake, the color darker at the edges of the segments. Color good and clear. Four blooms open at one time. Extra good landscape variety. Seems to have Brenchleyensis blood in it, as it closely resembles that variety, but has wider segments.

Season — Mid-season; 81 days.

Spike — Medium tall (82 cm.), erect, a large number of blooms (19 on main, 13, 11, and 10 on secondaries). Two spikes often borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, few.

NEW AMERICA (Crawford)

Originator — Crawford. Cataloged
1911

Group —
Stock from Crawford

Bloom — Medium size (8 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth bright rose (128-II) streaked a bit darker, throat light yellow-green marked with Tyrian rose (155-II), segments rather pointed. Often blooms appear rather irregularly on the spike.

Season — Medium late; 106 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (17).

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few, large.

NEW AMERICA (Mallory & Brown)

Originator — Mallory & Brown
Group —

Stock from Mallory & Brown

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth lilac-white (7-I), though often the color appears to be more pinkish. In any case the variety is lighter in color than America. Segments often feathered rosy pink. Throat with a yellowish green band penciled with Tyrian rose (155-IV).

Season — Rather late; 115 days.

Spike — Tall (115 cm.), erect, a large number of blooms (24).

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

NEW CENTURY. See 1900.

NEZINSCOTT

Originator — Childs. Reg. A. G. S.,
1914

Group — Childsii
Stock from Boddington; Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers reddish purple. Perianth poppy color (84-IV) with a purple-garnet almost black (165-IV) dash and penciling in the throat, which is white at the base. An excellent color.

Season — Medium early; 78 days.

Spike — Short (50 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium dwarf, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow, drooping leaves.

Corms — Medium size; cormels, few.

NIAGARA

Originator — Banning
Group — Gandavensis
Stock from Banning

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth yellowish white

(13-IV), throat and tips of segments feathered and splashed with crimson-carmine (159-IV). Splashes deep in throat are often not present. Excellent light color. "Leads cream-colored varieties."

Season — Mid-season; 98 days.

Spike — Tall (121 cm.), erect, a large number of blooms (18-22).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

1900

Originator — Kennell

Group — Gandavensis

Stock from Teas

Synonym — New Century (Iowa Seed Company).

Bloom — Small (7 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments vermilion; anthers lavender. Perianth cardinal-red (112-IV), throat yellow-green marked with reddish violet (180-III). Good substance, brilliant color, segments acute or pointed.

Season — Late; 105 to 115 days. "Blooming till frost" (Christy).

Spike — Tall (102 cm.), erect, often curved, a large number of blooms (17). Two spikes borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, small, few.

NONPAREIL

Originator — Kelway. Intro. 1909

Group — Kelway

Stock from Kelway

Bloom — Large (12 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments bright pink; styles bright pink. Perianth Lincoln red (88), throat yellowish white forming a sharp point, blotched with carmine-purple (156-IV). Excellent shape and substance. Color might be called a salmon-rose. Five blooms open at one time.

Season — Mid-season to late; 100 days.

Spike — Tall (115 cm.), erect, a large number of blooms (19), two branches.

Habit — Drooping, medium tall, spreading.

Growth — Unhealthy; plant well furnished with very broad but drooping leaves.

Corms — Medium size; cormels, few.

OBERAMMERGAU

Originator — Pfitzer. Intro. 1912

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (9.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and often broader. Stamen filaments pure white; anthers lavender. Perianth amber-white (12-II), lower lip very faintly tinted yellow-green (16-I), also a faint tinting of salmon in the outer segments. A good white. Seven blooms open at one time. Excellent spike of compact blooms of medium good substance.

Season — Mid-season; 95 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (17), two branches. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant very well furnished with broad, prominently veined leaves.

Corms — Large; cormels, few.

OBERBÜRGERMEISTER VON BORSCHT

Originator — Pfitzer. Intro. 1909-1913

Group — Nanceianus

Stock from Pfitzer

Bloom — Medium size (8 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and

narrower. Stamen filaments white; anthers lilac. Perianth scarlet (87-I), the lower lip a glowing poppy red (84-II) with a broad dash of French purple (161-IV). A striking contrast between the upper and the lower segments. Compact bloom of medium substance. Four blooms open at one time.

Season — Mid-season; 93 days.

Spike — Short (60 cm.), erect, a fair number of blooms (12), not branched. Two spikes per corm.

Habit — Erect, dwarf, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium small; cormels, few.

OCTOROON

Originator — Childs. Cataloged 1891

Group — Gandavensis

Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers blue-violet. Perianth near reddish salmon (73-II) slightly feathered and suffused with carmine, throat lemon-yellow marked and penciled with Tyrian rose (155). A compact bloom of medium substance.

Season — Mid-season; 99 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (12), two branches.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

OPHIR²⁶

Originator — Christy, 1904

Group —

Stock from Christy

Bloom — Large (12.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth yellowish white (13), often deeper, with a crimson-carmine (159-IV) blotch, the medial line of which is lilac-purple (160-IV). Rose-colored featherings are often found. Rather loose bloom of medium substance. Six blooms open at one time.

Season — Mid-August; 73 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

ORCHID (Kunderd)

Originator — Kunderd. Intro. Flanagan

Group —

Stock from Flanagan

Bloom — Medium size (7-8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with lavender sutures. Perianth amber-white (12-I), lower segments yellow, penciled with Tyrian rose (155-IV). Compact bloom of medium substance and good color.

Season — Mid-season; 83 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

²⁶ Souchet originated a variety of this name; it was cataloged by Vilmorin in 1877.

ORCHID (Woodruff)*Originator* — Woodruff. Intro. 1914*Group* — Lemoinei*Stock from* Woodruff

Bloom — Medium size (9 cm.). Tube curved, very stout, very short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish white; anthers lilac. Perianth pure white, blotched with Tyrian rose (155-IV), margined with amber-white (12-IV). A round, compact bloom of excellent substance. Six blooms open at one time. An excellent spike of bloom.

Season — Mid-season; 73 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

ORIENT*Originator* — Christy. Seedling of 1907*Group* —*Stock from* Christy

Bloom — Large (10 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper reflexed and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth pale rosy pink (129-I) shading from light to darker (129-IV), throat light cadmium yellow (23-1). Segments splashed and feathered with various tints of rosy pink. A dainty pink variety, called by Christy salmon-pink.

Season — Mid-season, mid-August; 87 to 95 days.

Spike — Medium tall (80 cm.), erect, well arranged, a large number of blooms (15 on main, 7 and 8 on two branches). Four spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves.

Corms — "Freely increasing by multiplication of large corms rather than production of cormels" (Christy). Corms large; cormels, large, prolific.

PACTOLE (Lemoine)*Originator* — Lemoine. Previous to 1894*Group* — Lemoinei*Stock from* Childs

Bloom — Small (5-6 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellow; anthers yellow. Perianth lemon-yellow (21-1) blotched with blood red. A very deep yellow. Very compact. Exceptionally good substance.

Season — Late; III days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

PACTOLE (Souchet)*Originator* — Souchet. Intro. 1894*Group* — Gandavensis*Stock from* Childs

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth "pure light yellow bordered rose, the inferior divisions generally darker yellow, blotched carmine-rose." Five blooms open at one time.

Season — Rather late; 105 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few or none.

PAINTED LADY

Originator — Miller
Group — Childsii
Stock from Childs

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth white with fine Tyrian rose (155-III) lines in the throat. About the same sort of variety as Snowbank but of different shape and markings. (Snowbank not at hand for comparison.) Four blooms open at one time.

Season — Late; 110 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium small; cormels, few.

PANAMA ²⁷

Originator — Banning
Group — Gandavensis × Lemoinei
Stock from Childs

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet; style red. Perianth lavender-pink, a little more rosy tinted than mauve-rose (153-IV), the color becomes almost white in the throat. Lip marked with Tyrian rose (155-III), not quite so decided as in America. The color is slightly darker than that of America, and the substance is better. (See America.)

Season — Mid-season to late; 100 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (18).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

PAPER WHITE. See Crystal White.

PAPILIO MAJOR

Originator —
Group — *Gladiolus papilio*
Stock from Lemoine

Bloom — Small (6 cm.). Tube very curved, slender, long. Segments unequal, connivent; the upper horizontal, somewhat hooded, and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers reddish violet. Perianth near dark old rose (149-II) feathered and flecked deeper and blotched with deep crimson-red (114-IV) bordered by lemon-yellow. Compact, bell-shaped bloom of excellent substance.

Season — Mid-season; 93 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (17).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

PAPILLON ²⁸

Originator — Krelage
Group — Lemoine
Stock from Krelage

Bloom — Medium size (9 cm.). Tube very stout, very short, curved. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream-white; anthers lilac, green tipped frequently. Perianth light mauve-rose (lighter than 153-I), blotched with French purple (brighter than 172-IV) with a small area of yellow in the center of the lower segment. A most attractive lip. Compact bloom of good substance.

Season — Medium early; 74 days.

²⁷ Gravereau originated a variety by this name, "about 1906," rose-carmine in color.

²⁸ Vilmorin catalogs a *gandavensis* variety by this name, originated in 1882.

- Spike* — Medium tall (92 cm.), erect, a fair number of blooms (15), two branches.
 Two spikes per corm.
Habit — Rather drooping, medium tall, spreading.
Growth — Vigorous; plant well furnished with medium broad leaves.
Corms — Medium size; cormels, prolific.

PARLIAMENT

Originator — Kelway. Intro. 1906

Group — Kelwayi

Stock from Kelway

- Bloom* — Large (15 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, pink tipped; anthers red-violet. Perianth brighter than rose-pink (118-IV) with blotches and medial lines of white. An excellent clear pink. Substance not the best. Seven blooms open at one time. Blooms appear on all sides of the spike sometimes.
Season — Mid-season; 90 to 95 days.
Spike — Medium tall (80 cm.), erect, a fair number of blooms (16 on the main, 8 on a secondary). Two spikes per corm.
Habit — Erect, medium tall, spreading.
Growth — Vigorous; plant well furnished with medium broad leaves.
Corms — Large; cormels, few.

PARODY

Originator — Kelway. Intro. 1906

Group — Childsii

Stock from Kelway

- Bloom* — Large (13 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth salmon-pink (126-I) very thickly splashed and feathered with madder lake (122-IV), in fact the markings make the ground color negligible. Throat yellow-green finely dotted with madder rose. Bloom angular. Color not good, various seasons causing a great variation in the degree of splashing.
Season — Mid-season; 83 to 85 days.
Spike — Medium tall (95 cm.), erect, a fair number of blooms (13 on main, 6 on a secondary).
Habit — Erect, medium tall, spreading.
Growth — Medium vigorous; plant well furnished with medium broad leaves.
Corms — Large; cormels, many, small.

PARURE²⁹

Originator — Souchet-Vilmorin. Intro. 1895

Group — Gandavensis

Stock from Gage

- Bloom* — Large (10 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and often broader. Stamen filaments white; anthers pink. Perianth violet-rose (154-I) with a light lemon-yellow throat slightly splashed with carmine. A very attractive color. Excellent substance. Five blooms open at once.
Season — Mid-season; 89 to 92 days.
Spike — Medium tall (80 cm.), erect, a fair number of blooms (16), usually not branched.
Habit — Erect, medium tall, spreading.
Growth — Vigorous; plant well furnished with broad leaves.
Corms — Medium large; cormels, few.

PAUL BÖHME

Originator — Pfitzer. Intro. 1911

Group — Gandavensis

Stock from Pfitzer

- Bloom* — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed

²⁹ Lemoine catalogs a *nanceianus* variety by this name introduced in 1898; this may be the same.

and narrower. Stamen filaments cream; anthers orange. Perianth madder lake (122-I) with lighter medial lines, throat penciled with carmine lake (121-IV), a feathering of plum in outer segments. Not a clear color.

Season — Medium early; 78 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

PEACE

Originator — Groff. Intro. 1899. Reg.

A. G. S., 1914, Cowee

Group —

Stock from Cowee

Bloom — Large (12 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, pink tips; anthers lavender. Perianth white, usually lilacy white (17-I), each of the lower segments striped with violet-rose (154-IV), the upper often suffused and penciled with violet-rose (154-I). A dainty color. In many localities it is one of the best whites, at least it is an excellent lilacy white.

Season — Mid-season; 90 to 96 days.

Spike — Tall (120-130 cm.), erect, a large number of blooms (22), often branched.

Habit — Erect, tall, spreading.

Growth — Very vigorous; plant very well furnished with exceptionally broad, prominently veined foliage.

Corms — Very large; cormels, prolific.

PERFECTION. See Taconic.

PHILADELPHIA

Originator — Cowee. Intro. 1905. Reg.

A. G. S., 1914, Cowee

Group —

Stock from Cowee

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments spotted red; anthers violet. Perianth Rose Neyron red (more salmony than 119-I) splashed with deeper rose. Large blotches of carmine-purple (156-IV) on lower segments. Bloom well open, of good substance, much spotted.

Season — Mid-season; 85 to 90 days.

Spike — Tall (115 cm.), erect, a fair number of blooms (16 on main, 6 on a secondary).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with broad leaves.

Corms — Large, prolific; cormels, few.

PHLEGETON

Originator — Brunelet-Vilmorin. Intro. 1910

Group — Gandavensis

Stock from Vaughan

Bloom — Medium size (9 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth scarlet (85-IV) with a blotch of intermixed Tyrian rose (155-IV) tipped by a dash of white. A well-open, compact bloom of good substance. Eight to ten blooms open at one time.

Season — Mid-season; 83 days.

Spike — Tall (110 cm.), erect, a fair number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.
Corms — Medium large; cormels, prolific.

PIGEON. See Gaiety.

PINK BEAUTY

Originator — Von Thol, 1893. Intro.
 Vos, 1909

Group —
Stock from Vos

Bloom — Medium size (7-8 cm.). Tube nearly straight, short, stout. Segments unequal, connivent; the upper as well as the lower have the edges gracefully reflexed, the lower but slightly narrower than the upper. Stamen filaments white; anthers lavender with blue suture lines. Perianth purple-rose (150-IV) with a blotch on the lower segments shading from ox blood red (94-IV) to blood red (93-III). Large number of blooms out at one time. Neat-looking bloom of good substance, but color is too bright for a commercial variety.

Season — Very early; first to bloom in 1913 (July 14); 63 to 70 days.

Spike — Tall (102 cm.), erect, a fair number of blooms (13). Two spikes usually produced per corm.

Habit — Erect, tall, compact.

Growth — Vigorous; plant medium well furnished with medium broad, short, rigid leaves.

Corms — Large; cormels, few. "First size cormels are good for sale in a year" (Vos).

PINK LADY

Originator — Hoeg

Group —
Stock from Hoeg

Bloom — Medium size (8 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth mauve-rose (153-I) with a slight shading of mauve-rose (153-IV) in the lower segment. Compact, of excellent substance. A good pink. Two to four blooms open at one time.

Season — Medium late; 113 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

PINK PERFECTION

Originator — Hopman

Group —
Stock from Hopman

Bloom — Large (11 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers ————. Perianth rosy pink (118-II) with an amber-white (12-1) throat lined with carmine-purple (156-II). A rather loose bloom of medium good substance. Ten blooms open at one time.

Season — Mid-season to late; 110 days.

Spike — Medium tall (90 cm.), erect, a large number of blooms (20).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with rather narrow leaves.

Corms — Small; cormels, few.

PIONEER

Originator — Souchet. Intro. 1907

Group — Nanceianus
Stock from Chamberlain & Gage

Synonym — Spelled Pioneer by the introducer.

Bloom — Large (11 cm.). Tube curved, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers pinkish lilac. Perianth deep rose-pink (120-I), throat lemon-yellow speckled and penciled with French purple (161-IV). Good clear color, showy and bright. Wide-open, compact bloom of excellent substance.

Season — Early to mid-season; 74 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

PLEIADE

Originator — Lemoine. Intro. 1901

Group — Precoces

Stock from Lemoine

Bloom — Medium size (8 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish white; anthers reddish violet. Perianth scarlet (85-III) with large lemon-yellow throat marked with French purple (161-IV), a lined blotch. A compact bloom of good substance. A good scarlet. Four blooms open at once.

Season — Early; 66 days.

Spike — Short (60 cm.), very erect, a fair number of blooms (15), not branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, small, few.

POCAHONTAS

Originator — Hoeg. Reg. A. G. S.,
1915

Group —

Stock from Hoeg

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments creamy white; anthers violet. Perianth amaranth red (168-IV) with a lemon-yellow throat, blotched with plum-violet (172-IV). Color excellent, deep, attractive. Compact bloom of excellent substance.

Season — Mid-season to late, early September; 121 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (11), usually not branched. Two spikes borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

PORTLAND

Originator — Childs. Intro. 1902. Reg.
A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth near carmine lake (121-II), throat amber-white (12-1) mottled and dotted with currant red (115-IV). Compact bloom of good substance. Five blooms open at one time.

Season — Mid-season; 88 to 90 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (15). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

PRÉCOCITÉ

Originator — Lemoine, 1901

Group — Precoces

Stock from Lemoine

Bloom — Small (6 cm.). Tube much curved, slender, short. Segments unequal, connivent; the upper hooded and broad, the lower reflexed and narrower. Stamen

filaments reddish; anthers reddish gray. Perianth scarlet (85-IV), throat pure lemon-yellow (21-I) spotted and marked with scarlet (85-III). Loose bloom, poor substance, not especially attractive except for earliness.

Season — Extremely early; 44 days.

Spike — Dwarf (55 cm.), erect, a fair number of blooms (12).

Habit — Erect, dwarf, compact.

Growth — Medium poor; plant poorly furnished with narrow, short, inconspicuous leaves.

Corms — Medium size; cormels, few.

PRECURSEUR

Originator — Krelage

Group — Lemoinei

Stock from Krelage

Bloom — Medium size (8.5 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal with reflexed edges and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender-pink. Perianth flesh color (139-III) blotched with purple-garnet (165-IV) bordered with deep lemon-yellow. A rather good color; bloom compact, of good substance, and well arranged on spike.

Season — "The chief merit of this variety is its remarkable earliness" (Krelage). 67 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (15), two branches.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

PRÉMIÈRE

Originator — Kunderd

Group —

Stock from Chamberlain & Gage

Bloom — Medium size (8.5 cm.). Tube curved, short, stout. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers pale lilac. Perianth creamy white (10-I) blotched with amaranth red (168-IV) with a slight feathering of Tyrian rose. This variety resembles Renown in color and shape of bloom, but the blotch of the latter is smaller. Buds rather yellowish. Bloom compact, of good substance. Eight blooms open at one time.

Season — Mid-season; 73 to 75 days.

Spike — Medium tall (75 cm.), erect, often curved, a fair number of blooms (12-17), not branched. Bracts bronze. Two spikes borne per corm.

Habit — Erect, medium tall, rather compact.

Growth — Exceptional; plant very well furnished with broad leaves.

Corms — Large; cormels, few.

PRESCOTT

Originator — Childs. Reg. A. G. S.,
1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube nearly straight, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and often broader. Stamen filaments pink; anthers violet. Perianth rosy pink (118-I), throat with a large blotch of Tyrian rose (155). Color not clear, rather waxy.

Season — Mid-season; 95 days.

Spike — Medium tall (78 cm.), erect, a fair number of blooms (16).

Habit — Erect, tall, spreading.

Growth — Medium vigorous; plant medium well furnished with broad leaves.

Corms — Medium large; cormels, few.

PRESIDENT TAFT³⁰

Originator — Stewart. Intro. 1910.
Reg. A. G. S., 1914

Group —

Stock from Stewart

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrow. Stamen filaments pinkish; anthers violet. Perianth rosy pink (118-III), throat yellow-green blotched with carmine, medial lines lighter. Dainty pink, well open.

Season — Mid-season; 80 days.

Spike — Medium tall (93 cm.), erect, a fair number of blooms (17 on main, 8, 7, and 3 on branches). Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

PRIDE

Originator — Burchett

Group —

Stock from Burchett

Bloom — Medium size (9.5 cm.). Tube curved, medium slender, medium short. Segments unequal, connivent; the upper horizontal with the edges reflexed, the lower straight and narrower. Stamen filaments pinkish; anthers violet. Perianth carmine-red (113-IV) with a very large area of yellow-green (17-1) in the lower segments. A striking contrast in color. Interesting and odd. Excellent substance.

Season — Mid-season; 80 to 85 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (17 on main, 12 and 7 on branches).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium large; cormels, prolific.

PRIDE OF GOSHEN

Originator — Kunderd. Reg. A. G. S.,
1914

Group — Ruffled

Stock from Kunderd

Bloom — Large (10 cm.). Tube straight, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth light reddish salmon (73-1) blotched with ox blood red (94-II). Compact bloom of excellent substance.

Season — Medium late; 111 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

Corms — Large; cormels, few.

PRIMULINUS HYBRID (1/2 Ruffled)

Originator —

Group — Ruffled primulinus

Stock from Chamberlain & Gage

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal, decidedly hooded, and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth salmon-pink (74-IV), yellowish green throat with solferino red (151-IV) lines. Almost the identical markings of *G. primulinus*. A real salmon color, very attractive.

Season — Mid-season, mid-August; 92 days.

Spike — Very tall (114 cm.), erect, a large number of blooms (20), six branches. Four spikes per corm.

Habit — Erect, tall, compact.

Growth — Exceptionally vigorous; plant well furnished with leaves six centimeters wide.

Corms — Very large; cormels, very prolific.

³⁰ Vilmorin catalogs a *gandavensis* variety by this name, originated by Brunelet and introduced in 1911.

PRINCE GEORGE*Originator* — White*Group* —*Stock from* White

Bloom — Large (12 cm.). Tube straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal with reflexed edges, the lower straight and broader. Stamen filaments reddish; anthers violet. Perianth scarlet (87-1) with white blotches almost completely covered with dots and intermixtures of currant red (115-IV). Colors clear and attractive, bloom compact.

Season — Mid-season; 76 to 80 days.

Spike — Tall (100 cm.), inclined to be drooping, a fair number of blooms (18 on main, 9 on a branch). Two spikes often borne per corm.

Habit — Not very erect, tall, spreading.

Growth — Not vigorous; plant medium well furnished with medium broad leaves.

Corms — Large; cormels, small, few.

PRINCE HENRY OF YORK*Originator* — Kelway. Intro. 1901*Group* — Kelwayi*Stock from* Kelway

Synonym — King of Scarlets.

Bloom — Medium size (8 cm.). Tube curved, medium stout, long. Segments unequal, connivent; the upper horizontal, the lower reflexed. One of the lower segments very small. Stamen filaments reddish; anthers violet. Perianth bright fiery red (79-III), area of crimson-carmine (159-IV) on lower segment. Good, clear color. Excellent substance.

Season —

Spike — Medium tall (90 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, compact.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few, large.

PRINCE OF INDIA*Originator* — Childs. Intro. 1904. Reg.

A. G. S., 1914

Group — Childsii*Stock from* Childs

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed and often broader. Stamen filaments salmony; anthers salmon-pink. Perianth madder carmine (141-II) feathered and splashed with violet-lilac (175-IV), blotched with carmine-purple (156-IV). A rather loose bloom of good substance. Color not clear. Six blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (18), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, medium prolific.

PRINCEPINE*Originator* — Kirchhoff. Intro. 1910*Group* — Princeps hybrid*Stock from* Kirchhoff

Bloom — Large (10 cm.). Tube straight, medium slender, short. Segments unequal, connivent; the upper horizontal with reflexed edges, the lower reflexed and narrower. Stamen filaments vermilion; anthers violet. Perianth vermilion-red (87-IV), throat cream-yellow blotched with geranium red (III-IV). Bright in appearance. Three blooms open at one time. "Good keeper and long distance shipper."

Season — Mid-season; 90 days.

Spike — Medium tall (70 cm.), erect, spreading.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few, medium size.

PRINCEPS*Originator* — Van Fleet. Bloomed 1897.*Intro.* by Vaughan, 1903*Group* — *Cruentus* × *Childsii**Stock* from Vaughan; Teas

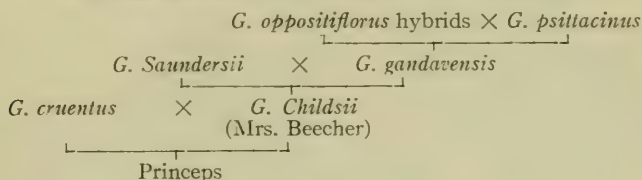
Bloom — Large (12–16 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and often broader. Stamen filaments scarlet; anthers violet. Perianth scarlet (87–iv) with yellow-green medial lines and throat, throat penciled and dotted a deep shade of scarlet. Good clear color; bloom well open and flat; usually only two blooms are out at one time; excellent substance. Called the amaryllis-flowered gladiolus.

Season — Late; 111 days.

Spike — Medium tall (83 cm.), erect, often crooked, a fair number of blooms (16 on main, 7 on a secondary).

Habit — Often drooping, medium tall, very spreading.*Growth* — Medium vigorous; plant well furnished with rather narrow leaves.*Corms* — Medium size; cormels, large, prolific.

DIAGRAM SHOWING THE PARENTAGE OF PRINCEPS

**PRINCESS OF ORANGE***Originator* — Kunderd*Group* —*Stock* from Brown

(Described from cut spike.)

Synonym — Formerly Kunderd's Orange.

Bloom — Medium size (8 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, reddish tips; anthers dark violet. Perianth russet-orange (82–iv, really brighter than color given in color chart), throat lemon-yellow, rounded with a pointed dart forward and bordered with a carmine-like coloration. A good bright-colored variety. Good substance, ships well.

Season — Mid-season.*Spike* — Tall (115 cm.), erect, a fair number of blooms (18), branched.*Habit* — Erect, tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.**PRINCESS SANDERSONI.** See Snowbank.**PRINZESSIN VIKTORIA LUISE***Originator* — Pfitzer. *Intro.* 1910*Group* — Gandavensis*Stock* from Pfitzer

Bloom — Medium size (8.5 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth light carthamin red (88–i) with a lemon-yellow spot in throat edged by crimson-purple shading. Often feathered in outer edges of segments; slightly ruffled. A well-arranged spike of bloom. Twelve blooms open at one time. A compact bloom of extraordinary substance.

Season — Medium late; 111 days.*Spike* — Very tall (120 cm.), erect, a large number of blooms (21), branched.*Habit* — Erect, tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, few.



PHOTOGRAPH LENT BY VAUGHAN'S SEED STORE

FIG. 63. PRINCEPS

PROFESSOR FLEISCHER*Originator* — Pfitzer. Intro. 1909-1911*Group* — Lemoinei*Stock from* Pfitzer

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper decidedly hooded, causing it to separate from the others, the lower segment reflexed and narrower. Stamen filaments white with red tips; anthers lavender. Perianth tomato red (81-III) blotched with blood red (93-IV) with fine lines of yellow-green through the blotch. base of throat whitish. Shape extraordinary, good color.

Season — Mid-season to late; 95 days.

Spike — Short (63 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, small, few.

PROMETHEUS*Originator* — Krelage*Group* —*Stock from* Krelage

Bloom — Very large (13.5 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish white; anthers white mottled with lavender. Perianth poppy color (84-III); throat amber-white (12-I) penciled thickly so as to form a blotch of French purple (161-IV), the color becomes lighter at the base of the throat; the segments usually strongly feathered with poppy. Bloom well open, of good substance. Four blooms open at one time.

Season — Early; 67 days.

Spike — Tall (100 cm.), erect, slender, graceful, a fair number of blooms (11), usually not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

PURITY (Stewart). See Meadowvale.**QUEEN ESTHER***Originator* — Mellinger*Group* —*Stock from* Mellinger

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper reflexed and broader than the lower, which is also reflexed. Stamen filaments white; anthers violet. Perianth Tyrian rose (155-I-II, the two shades are intermixed) blotched with deep Tyrian rose (155-IV). Bloom very compact, well shaped. Five blooms open at one time.

Season — Mid-season; 85 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (16 on main, 10 and 7 on secondaries). Three spikes frequently developed per corm. Spike is often weak at the tip.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

QUEENLY*Originator* — Groff*Group* —*Stock from* Woodruff

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers lavender. Perianth creamy white with blotches of solferino red (157-IV) bordered by yellow-green. Featherings of solferino red often develop. Bloom circular in outline, and of good shape, color, and substance; seems a commercial color.

Season — Medium early; 72 to 75 days.

Spike — Medium tall (77 cm.), erect, a fair number of blooms (17), usually two branches. Often two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, small, prolific.

QUEEN OF SHEBA

Originator — May

Group —

Stock from May

Bloom — Large (13 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth vermilion-red (87-1) with penciled blotch of geranium lake (89-1v) on an amber-white (12-1) throat, segments often feathered. Bloom well open, of good shape, attractive color, and excellent substance.

Season — Mid-season; 83 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Very vigorous; plant well furnished with broad leaves.

Corms — Large, red; cormels, prolific.

RADIANCE

Originator — Miller

Group — Childs

Stock from Childs

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments bluish; anthers violet. Perianth crushed strawberry (109-1v), throat amber-white (12-1) dotted with crushed strawberry, segments frequently feathered. Nine blooms open at one time.

Season — Late; 110 days.

Spike — Tall (100 cm.), erect, a large number of blooms (19), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

RAY

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (11 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight, though slightly reflexed and narrower. Stamen filaments white with red tips; anthers lavender. Perianth carmine lake (121-11), the color becoming lighter toward the base of the segments; medial lines of upper segments white; the three lower segments blotched with carmine (112-1); within the carmine blotch and extending forward the medial lines are yellow-green. Segments rather thin, making them rather dainty though they do not lack substance. Five blooms open at one time.

Season — Mid-season; 80 to 90 days.

Spike — Medium tall (95 cm.), erect, blooms freely (12), branched. Spikes rather weak when opened indoors.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, many.

RED CANNA. See Mrs. W. E. Fryer.

RED LION

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper vertical and broad, the lower reflexed and often broader. Stamen filaments white with vermilion tips; anthers violet. Perianth

fiery red (near 79-II) blotched with crimson-carmine (159-IV), a dash of yellow-green on the medial line runs into the blotch. Bloom rather laterally depressed; good colors.

Season — Medium early; 78 to 85 days.

Spike — Medium tall (86 cm.), erect, a large number of blooms (22 on main, 12 and 4 on branches). Two spikes often per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

Corms — Large; cormels, prolific.

RED, WHITE CENTER

Originator — Auten

Group —

Stock from Auten

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender. Perianth cochineal red (83-II), color becoming lighter in the throat, the lower segments with a large area of lemon-yellow (21-I) finely and sparsely dotted with crimson-carmine. Good substance.

Season — Mid-season; 85 to 90 days.

Spike — Tall (100 cm.), erect, a large number of blooms (24 on main, 10 and 9 on branches).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few, small.

REINE BLANCHE. See Reine de l'Anjou.

REINE DE L'ANJOU³¹

Originator —

Group — Gandavensis

Stock from Ketcham; Velthuys (White Excelsior)

Synonyms — Reine Blanche; Le Radium; Jeanne d'Arc; White Excelsior; Schneewittschen.

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender. Perianth pure white except deep in throat, where there is an area of Tyrian rose. A good white.

Season — Mid-season; 90 to 97 days.

Spike — Tall (112 cm.), erect, a large number of blooms (21 on main, 13 and 11 on branches).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with excellent broad foliage.

Corms — Large; cormels, few or none.

RENOWN

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lavender; anthers thin, a delicate violet. Perianth amber-white (12-II) often with slight Tyrian rose (155) markings (not found in spikes that have been opened indoors), lined blotch of Tyrian rose (155-III). The color though not clear, is good; the blotch is well defined; good substance. Three blooms open at one time.

Season — Medium early; 75 to 80 days.

Spike — Tall (109 cm.), erect, a large number of blooms (21 on main, 12, 8, and 10 on branches).

Habit — Erect, tall, spreading.

³¹ Lemoine catalogs a *nanceianus* variety of the name of Reine d'Anjou, introduced in 1906, which is carmine.

Growth — Vigorous; plant well furnished with broad stiff leaves.
Corms — Medium large; cormels, prolific.

REUBEN H. WARDER. See America.

REXFORD

Originator — Crawford

Group —

Stock from Mallory & Brown; Crawford

Bloom — Medium size (9 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers deep lilac. Perianth rose-pink (118) thickly feathered with carmine (116-14), white medial lines extend to the tips of the segments, throat amber-white (12-1) with Tyrian rose penciling and intermixtures.

Season — Mid-season; 100 days.

Spike — Medium tall (68 cm.), erect, a fair number of blooms (18):

Habit — Erect, medium tall, very spreading.

Growth — Vigorous; plant well furnished with medium to narrow foliage.

Corms — Medium size; cormels, large, prolific.

RICHARD MILNER

Originator — Kelway. Intro. 1900

Group — Gandavensis

Stock from Kelway

Bloom — Medium size. Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and not broad, the lower reflexed and narrower, the lower inferior segment small, narrow. Stamen filaments lilacy white; styles yellowish. Perianth white thickly splashed and feathered with crimson-carmine, yellow throat penciled with reddish along the medial lines.

Season — August 30, 1911.

Spike — Short, erect, a fair number of blooms.

Habit — Erect, dwarf, spreading.

Growth — Medium vigorous; plant medium well furnished with narrow leaves prominently veined.

(Described by George J. Burt.)

RICHARD STRAUSS

Originator — Pfitzer. Intro. 1914

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (8 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white, blue sutures. Perianth pure white with an amber-white (12-11) throat penciled with lilac (176-1). Good light color; blooms sometimes double, compact, and of good substance. Seven blooms open at one time.

Season — Mid-season; 90 days.

Spike — Tall (115 cm.), erect, a fair number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

RICHMOND RED. See Velvet King.

ROCHESTER WHITE

Originator — Thomann

Group — Gandavensis

Stock from Thomann

Synonym — White Queen. By many this variety is said to be a synonym of Weisse Dame, or White Lady.

Bloom — Medium size (9.5 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pure white; anthers creamy white. Perianth pure white with a slight tinge of lemon-yellow on the three lower segments. This description also applies to Weisse Dame. Bloom compact, of good substance. As grown by Thomann it is unsurpassed by any other white, but it seems rather difficult for others to grow.

Season — Mid-season; 85 days. Seems a little earlier than Weisse Dame.

Spike — Tall (100 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, tall, spreading.

Growth — More vigorous than Weisse Dame; plant well furnished with broad bright green foliage.

Corms — Medium large; cormels, few, small.

ROMANCE

Originator — Burchett

Group —

Stock from Burchett

Bloom — Medium size (9 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments cream-white; anthers cream, sutures lavender. Perianth yellowish white (13-IV) with deep Tyrian rose (135-IV) markings to form a blotch surrounded by yellow-green.

Season — Mid-season; 97 days.

Spike — Tall (112 cm.), erect, a large number of blooms (19). Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few or none.

ROSEANN

Originator — Childs. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (8 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth scarlet (85-I), throat lemon-yellow penciled and blotched with blood red (93-IV). A clear color.

Season — Mid-season; 104 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, few.

ROSEDALE

Originator — Childs. Cataloged 1896.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, often somewhat twisted, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers red-violet. Perianth deep lilac-rose (151), striped blotch of blood red (93-IV) on amber-white (12-I) throat. Segments rather pointed in appearance.

Season — Mid-season to late; 107 days.

Spike — Tall (102 cm.), erect, a fair number of blooms (14).

Habit — Rather drooping, tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few or none.

ROSELLA

Originator — Cowee, 1904. Reg. A.
G. S., 1914
Group — Lemoinei (Gage); nanceianus
(Woodruff)
Stock from Cowee

Synonym — Kathryn.

Bloom — Very large (13 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower straight and narrower. Stamen filaments pink; anthers violet. Perianth carmine-purple (156-II), large blotch of French purple (161-III) on a yellow-green throat. Color clear, bloom well open, compact. An excellent variety. The color might be described as a bright, deep rose.

Mrs. Francis King, speaking of the use of this variety in the garden, says:

"Rosella above *Ageratum Stella Gurney* cannot fail to be a success in color paintings; Rosella below *Salvia Azurea*, with the annual pink mallow near by; and last, Rosella with *Baron Hulot*, that small-flowered but ever-needed *Gladiolus* of the color known as Bishop's violet. I am myself minded to grow *Baron Hulot* in the midst of *Ageratum Stella Gurney* — precisely as one lets a colony of Tulips appear above *Forget-me-not*; and *Baron Hulot* would be also most perfect among the fine, creamy flowers of *Chrysanthemum Garza*."

Season — Mid-season; 86 days.

Spike — Medium tall (82 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, small, prolific.

ROSE QUEEN³²

Originator — Christy. Intro. 1903
Group —
Stock from Christy

Bloom — Large (10-11 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink tipped; anthers violet. Perianth rosy pink (118-II), throat lemon-yellow, segments thickly feathered and splashed with cardinal-red (112-II). Good open appearance, color mottled, lower segments often folded laterally, substance not extra.

Season — Mid-season; 90 to 95 days.

Spike — Medium tall (97 cm.), erect, a fair number of blooms (15). Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, large, few.

ROSE RED

Originator — Auten
Group —
Stock from Auten

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments nearly equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers white. Perianth nearly carmine lake (121-II) blotched with crimson-carmine. Bloom wide open, nearly round, well arranged. Six blooms open at one time.

Season — Mid-season; 90 to 100 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (18), two branches.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, large, prolific.

ROSE SALMON EXTRA

Originator — Auten
Group — Lemoinei hybrid
Stock from Auten

Bloom — Large (12 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed

³² Franken Brothers catalog a variety by this name.

and narrower. Stamen filaments reddish; anthers red-violet. Perianth salmony poppy red (more salmony than 84-1), large blotch of carmine lake (121-IV), which is rather inconspicuous, making the bloom almost a self color. Color good, bright; substance good. Few blooms open at one time.

Season — Usually early September; 90 days.

Spike — Medium tall (87 cm.), very erect, a fair number of blooms (12), branched.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, prolific.

ROSE WELLS

Originator — Austin. Reg. A. G. S., 1914

Group —

Stock from Austin

Synonym — Austin No. 55.

Bloom — Large (10-11 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments white, pinkish tips; anthers gray. Perianth light mauve-rose (153-I) with a blotch of Tyrian rose (155-IV shading to 155-II) bordered by deep yellow-green. Bloom is large, substance rather poor, colors clear and attractive.

Season — Early September; 103 days.

Spike — Tall (111 cm.), erect, blooms freely (17 on main, with 5 and 6 on two secondaries).

Habit — Erect, tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

ROSY SPRAY

Originator — Childs. Intro. 1910. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Large (11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broad. Stamen filaments white, red flecked; anthers purple. Perianth lilacy white feathered and mottled with crimson-carmine, the lower segments striped with a broad penciling of crimson-carmine. The segments are reflexed so as to appear pointed. The splashing in the segments is so pronounced that the bloom should be called variegated.

Season — Late; 115 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium large; cormels, few.

ROUGE TORCH

Originator — Groff. Intro. Tracy, 1914

Group —

Stock from Brown

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers cream. Perianth amber-white (12-1) thickly suffused with salmon-carmine (125-1) blotched with deep carmine-red (114-IV). A compact bloom of good color and substance, well arranged on spike. Four blooms open at one time.

Season — Mid-season.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (11). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Small; cormels, prolific.

ROYALE*Originator* — Tracy*Group* — Lemoinei hybrid*Stock from* Tracy

Bloom — Medium size (7-8 cm.). Tube curved, slender; short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth violet-rose (154-IV), blotched with Tyrian rose (deeper than 155-IV). Compact bloom of good substance.

Season — Medium early; 75 days.

Spike — Medium tall (65 cm.), erect, a fair number of blooms (16), two branches.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

ROYALTY³³

Originator — Christy. Seedling of 1907

Group —*Stock from* Christy

Bloom — Large (10-11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers violet. Perianth French purple (near 161-I), throat lemon-yellow bordered by lilac-purple (160-IV), medial lines whitish. Wide-open bloom with rounded segments, good substance.

Season — Mid-season to late; 105 days.

Spike — Medium tall (65 cm.), erect, a fair number of blooms (12). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

RUFFLED BIG FACE*Originator* — Kunderd*Group* — Ruffled*Stock from* Kunderd

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pink; anthers lilac, sutures violet. Perianth lilacy white (7-I) but so thickly splashed and veined with Tyrian rose (155-III) that the color appears different, throat stippled and marbled with Tyrian rose (155-IV), medial lines deep Tyrian rose, an intermixture of yellow in the throat. An attractive sort, compact, excellent substance, ruffled.

Season — Medium late; 110 days.

Spike — Tall (105 cm.), erect, a large number of blooms (20), branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

RUFFLED SALMON*Originator* — Kunderd*Group* — Ruffled*Stock from* Kunderd

Bloom — Medium size (8.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers with violet sutures. Perianth Lincoln red (near 88-I) blotched with cardinal-red (112-III). Compact bloom of excellent substance, good shape, wide open, ruffled.

Season — Mid-season to late; 104 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms (8-9).

Habit — Erect, rather dwarf, spreading.

Growth — Vigorous; plant well furnished with broad foliage.

Corms — Medium large; cormels, few.

³³ Kelway introduced a variety by this name in 1911.



FIG. 64. RUFFLED SALMON

RUFFLED YELLOW*Originator* — Kunderd*Group* — Ruffled*Stock from* Kunderd*Bloom* — Medium size (9 cm.). Tube straight, slender, long. Segments unequal, conni-**FIG. 65. RUFFLED YELLOW***Spike* — Medium tall (95 cm.), erect, a fair number of blooms (15 on main, 7 and 8 on secondaries). Two spikes per corm.*Habit* — Erect, tall, rather compact.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium large; cormels, few.

vent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish white; anthers white, sutures blue. Perianth cream-yellow (30-11), throat splashed with Tyrian rose (155-14). Compact bloom of good substance. Excellently arranged spike. Six blooms open at one time.

Season — Mid-season to late; 103 days.*Spike* — Medium tall (75 cm.), erect, a fair number of blooms (18).*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Large; cormels, few, large.**RUTH***Originator* — Stewart.*Intro.* 1912*Group* —*Stock from* Stewart*Bloom* — Medium size (8 cm.).

Tube very curved, medium slender, rather short. Segments unequal, connivent; the upper reflexed and broad, the lower also reflexed and narrower. Stamen filaments white; anthers violet. Perianth bright rose (128-14), which in the throat blends into Tyrian rose (155-1), setting off a yellow-green throat dashed with deep Tyrian rose. Dainty color, good substance.

Season — Mid-season to late; 103 days.

RUTHONY LONGSIDE*Originator* — Kelway. Intro. 1910*Group* — July Flowering*Stock* from Kelway

Bloom — Large (10–11 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth carmine-red (113–14), throat lemon-yellow marked deep carmine-red (113 deeper than 14). Very good bloom of velvety texture.

Season — Not so early as the term *July Flowering* would imply; 100 days.

Spike — Tall (113 cm.), erect, a fair number of blooms (14).

Habit — Erect, tall, very spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SAFRANO*Originator* — Souchet.

Intro. 1899

Group — Gandavensis*Stock* from Childs

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers cream with violet sutures. Perianth near Naples yellow (29–III), called by Childs Nankeen yellow, with very pale violet-old-rose (145–III?) markings in the throat. A trifle ruffled, dainty shape. Segments thick but brittle.

Season — Mid-season, mid-August to late August; 90 to 100 days.

Spike — Medium tall (89 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant very well furnished with medium broad leaves.

Corms — Medium large; cormels, few but large.



FIG. 66. SAFRANO

ST. LOUIS*Originator* — Childs. Reg. A. G. S., 1914*Group* — Childsii*Stock* from Childs

Bloom — Large (11 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed

and narrower. Stamen filaments reddish; anthers yellow. Perianth scarlet (87-IV), the inner segments more rosy than 87-IV, medial lines and throat a lighter shade.

Outer segments slightly ruffled and rather pointed. Spike not very well arranged.

Season — Medium late; 108 days.

Spike — Tall (100 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, rather compact.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SALEM

Originator — Childs. Cataloged 1912.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, reddish tinge; anthers violet. Perianth madder lake (122-I) blotched with carmine-red (133-III).

Season — Mid-season; 97 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad foliage, silver-green in color.

Corms — Large; cormels, small.

SALMON

Originator — Childs. Cataloged 1912.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth rosy pink (118-IV but more yellowish), the throat striped with deep crimson-carmine (159-IV) on a white background. A good color. Childs calls the color salmon-pink.

Season — Rather late; 110 days.

Spike — Medium tall (92 cm.), erect, a fair number of blooms (10).

Habit — Erect, medium-tall, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

SALMONIA³⁴

Originator — Childs. Intro. 1904.

Reg. A. G. S., 1914

Group — Gandavensis

Stock from Childs

Bloom — Small (7 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellowish; anthers violet. Perianth salmon-pink (74-I), lower inner segments pure aureoline yellow (22-I) with crimson-carmine medial lines, upper segments with yellowish green medial lines. A distinct color.

Season — Mid-season to late; 105 days.

Spike — Medium tall (88 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

SALMON QUEEN (Woodruff). See Baltimore.

³⁴ Another *Salmonia* was introduced in 1864 by McTear.

SALMON RED NO. 16

Originator — Banning. *Intro.* Perkins-King Company

Group —

Stock from Perkins-King Company

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth carthamin red (88-11) thickly feathered deeper, lemon-yellow throat speckled and penciled with carthamin red (88-1v). A rather loose bloom of medium good substance.

Season — Mid-season; 85 days.

Spike — Tall (111 cm.), erect, a large number of blooms (22), often two branches. Two spikes frequently borne per corm.

Habit — Erect, medium tall, rather compact.

Growth — Not vigorous; medium well furnished with medium narrow leaves.

Corms — Medium large; cormels, few.

SANDERSONI. See Snowbank.

SANGUINE

Originator — Cataloged 1912

Group —

Stock from Tracy

Bloom — Medium size (8 cm.). Tube straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth poppy color (84-1v) with a stippled throat of crimson-red (114-1v) dots on amber-white (12-1). Good color, attractive throat. A compact bloom of medium good substance.

Season — Mid-season; 80 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (18), two branches. Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

SANS PAREIL³⁵

Originator — Vilmorin. *Intro.* 1902

Group — Gandavensis

Stock from Childs

Bloom — Medium size (9 cm.). Tube nearly straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white with lavender sutures. Perianth scarlet (87-11) becoming lighter toward the center, throat and medial lines amber-white. A compact bloom of good substance. Childs describes the color thus: "Very bright orange-rose, slightly striped vermilion with a large white spot."

Season — 80 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — The great susceptibility to disease almost limits its culture. Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SARA. See Jean Dieulafoy.

SARATOGA

Originator — Childs. *Intro.* 1898.

Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9.5 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower straight

³⁵ Krelage, 1905, catalogs an early, dwarf variety of this name.

and narrower. Stamen filaments white, scarlet tips; anthers red-violet. Perianth scarlet (87-II, considerable more orange than real scarlet), an amber-white throat marked with deeper scarlet. A rather poor-shaped bloom.

Season — Mid-season to late.

Spike — Tall (106 cm.), erect, a fair number of blooms (15).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SCARLET LETTER

Originator — Austin

Group —

Stock from Austin

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper reflexed laterally and broad, the lower reflexed and broader. Stamen filaments scarlet; anthers violet. Perianth darkest scarlet (87-IV) with a large blotch of dark plum-violet (172-IV). Segments somewhat feathered with slatish scarlet. An excellent color. Five blooms open at once.

Season — Mid-August to late August; 95 to 97 days.

Spike — Tall (119 cm.), erect, but often needs support, blooms freely (21 on main, 10 and 11 on secondaries).

Habit — Erect, tall, compact.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few.

SCARLET VELVET

Originator — Groff

Group —

Stock from Woodruff

Bloom — Large (12 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, red tips; anthers red-violet. Perianth scarlet (87-IV), throat amber-white (12-I) blotched with blood red (92-IV). A good color. Well open. Five blooms open at one time.

Season — 90 to 100 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SCARSDALE

Originator — Cowee. Intro. 1903. Reg.

A. G. S., 1914, Cowee

Group —

Stock from Cowee

Synonym — Cedar Acres Mauve.

Bloom — Very large (13 cm.). Tube straight, stout, short. Segments nearly equal, connivent; the upper reflexed and broad, the lower reflexed and narrow. Stamen filaments white with pink tips; anthers violet. Perianth a little lighter than rosy magenta (169-I), splashed throughout the segments with deeper rosy magenta, the throat penciled with the same color. Bloom large and showy, but under certain conditions the splashings make the bloom very mixed in color. The color is not very popular with some persons.

Season — Mid-season; 80 days.

Spike — Very tall (135 cm.), erect, a fair number of blooms (15).

Habit — Very erect, but falls over badly when not staked, it being one of the few varieties on the trial grounds that absolutely need staking.

Growth — Vigorous; plant well furnished with broad foliage.

Corms — Large size; cormels, medium large size.

SCHNEEWITTSCHE. See Reine de l'Anjou.

SCHWABEN*Originator* — Pfitzer. Intro. 1913*Group* — Gandavensis*Stock from* Pfitzer

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments amber-white; anthers amber, violet sutures. Perianth amber-yellow (28-1) blotched in the throat with amaranth red (168-III) and shaded with lemon-yellow. A compact bloom of excellent substance. Six to eight blooms open at one time. Spike a little too thickly set with blooms

Season — Mid-season; 87 days.

Spike — Medium tall (95 cm.), erect, a large number of blooms (20-22), branched.

Habit — Erect, medium height, spreading.

Growth — Very vigorous; plant well furnished with rather broad leaves.

Corms — Medium large; cormels, prolific.

SCRIBE*Originator* — Childs. Intro. 1906*Group* — Childsii*Stock from* Childs

Bloom — Large (11-13 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, red tips; anthers white. Perianth lilac-rose (lighter than 152-1), throat with light solferino fine lines and intermixed area making a blotch. Segments often lightly feathered with carmine. A dainty color. A good shape. Nine blooms open at one time.

Season — Mid-season to late; 100 days.

Spike — Tall (113 cm.), erect, a large number of blooms (21 on main, 7 on secondary).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

SEPTEMBER*Originator* — White*Group* —*Stock from* White

Bloom — Large (10 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper horizontal and narrower than the lower reflexed segment. Stamen filaments pinkish; anthers violet. Perianth violet-rose (154-1) with a crimson-carmine (159-1) stippled throat blotch and a dash of lemon-yellow at the medial line of the blotch. White calls it "Cattleya orchid color,—no better gladiolus on earth for commercial use." Compact bloom of good substance.

Season — Early September; 110 to 115 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (13), not branched.

Two spikes frequently borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with narrow grass-like foliage.

Corms — Medium large; cormels, prolific.

SHAKESPEARE (Cowee)*Originator* — Souchet. Cataloged 1877,

Vilmorin

Group — Gandavensis*Stock from* Cowee

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments pinkish; anthers lavender. Perianth lilacy white with crimson-carmine dash in the throat. Bloom a good light color, a standard commercial variety. Differs from Michell's Shakespeare in that the latter is more angular, gandavensis-like, and the edges of the segments are regularly suffused and splashed, besides more blooms open at once.

Season — Mid-season; 87 to 89 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (14), not branched.
Habit — Erect, medium to dwarf, spreading.
Growth — Good; plant medium well furnished with medium broad leaves.
Corms — Large; cormels, few.

SHAKESPEARE (Michell and others)

Originator — Souchet. Cataloged 1877,
 Vilmorin
Group — Gandavensis
Stock from Crawford; Michell

Bloom — Medium size (9 cm.). Tube straight, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white with red tips; anthers violet. Perianth white suffused and feathered with carmine-purple (156-I), with a large crimson-carmine (159-IV) blotch. Nine blooms open at one time. The bracts surrounding the bloom are often very long.

There are several Shakespeares, but, so far as those observed, they would all fit the description given, the main differences being in the shape and the degree of the feathering of the petals.

Season — Medium early; 85 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SHIRLY

Originator — Stewart. Intro. 1910
Group —
Stock from Stewart

Bloom — Small (6.5-7 cm.). Tube straight, very stout, very short. Segments nearly equal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments white; anthers faintest lilac. Perianth pale rosy pink (129-II) slightly feathered with deeper pink. Large French purple (161-IV) blotch on lower segments surrounded by lemon-yellow (21-II), a faint greenish white medial line on each segment. Striking bloom. Good substance.

Season — Mid-season; 85 days.

Spike — Medium tall (80 cm.), rather erect but often curved, a fair number of blooms (15 on main, and 11 and 7 on secondaries).

Habit — Erect, medium tall, rather spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SIDNEY GRANT (Ruff). See Velvet King.**SIEGER**

Originator —
Group —
Stock from Velthuis

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments red; anthers violet. Perianth scarlet (84) with a lemon-yellow throat penciled with Tyrian rose. A bloom of excellent color, leathery substance, well open, and compact.

Season — Mid-season; about 90 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (14), not branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size, prolific; cormels, few.

SILVER STATE*Originator* — Wilmore*Group* —*Stock from* Wilmore

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth deep cerise (123-II) with a white throat marked with French purple (161-III). A rather loose bloom of medium good substance.

Season — Mid-season; 97 days.

Spike — Short (30 cm.), erect, a fair number of blooms, usually not branched.

Habit — Erect, dwarf, compact.

Growth — Vigorous; plant well furnished with narrow foliage.

Corms — Medium small; cormels, prolific.

SIR H. D. WOLFF*Originator* — Kelway. Intro. 1898*Group* — Kelwayi*Stock from* Kelway

Bloom — Medium size. Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments pinkish; anthers white. Perianth cardinal-red, white medial lines, lower part of small segments white with red penciling and striping.

Season — August 9, 1911.

Spike — Medium tall, erect, a large number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves prominently veined.

(Described by George J. Burt.)

SIR JOHN CRAGLE*Originator* — Kelway. Intro. 1909*Group* — Kelwayi*Stock from* Kelway

Synonym — John Churchill Cragle.

Bloom — Large (10-11 cm.). Tube nearly straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers violet. Perianth scarlet (87-I) with pure amber-white throat, no markings. A good color.

Season — Mid-season to late; 110 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (11).

Habit — Rather drooping, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large, prolific; cormels, small, few.

SIR MARCUS SAMUEL*Originator* — Kelway. Intro. 1908*Group* — Childsii*Stock from* Kelway

Bloom — Large (10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and nearly as broad. Stamen filaments white; anthers red-violet. Perianth bright rosy scarlet (124-I), wide feathering or splashes of vermilion extending deep into the throat. A finely speckled throat of carmine-purple (156-IV). A fine looking bloom.

Season — Mid-season; 95 to 100 days.

Spike — Very tall (115 cm.), erect, a fair number of blooms.

Habit — Rather drooping because of the great height, spreading, long branches.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few.

SIR THOMAS DEWAR*Originator* — Kelway. Intro. 1908*Group* — Childsii*Stock from* Kelway*Synonym* — Also cataloged as Sir Thomas Drew.*Bloom* — Medium size (8-9 cm.). Tube curved, medium slender, medium long.

Segments unequal, connivent; the upper horizontal and broad, the lower nearly straight and narrower. Stamen filaments reddish; anthers blue-violet. Perianth Lincoln red (88-1), edges of segments splashed with dull purple lake, the lower segment with a lemon-yellow (21-11) spot penciled with ox blood red (94-1). Color not clear, splashing seems rather objectionable.

Season — 82 days.*Spike* — Tall (105 cm.), erect, a large number of blooms (20 on main, 9 on a branch).*Habit* — Erect, tall, spreading.*Growth* — Vigorous; plant well furnished with broad leaves.*Corms* — Large; cormels, few.**SIR THOMAS DREW.** See Sir Thomas Dewar.**SIR WILLIAM INGRAM***Originator* — Kelway. Intro. 1908*Group* — Princeps seedling*Stock from* Kelway

Bloom — Large (11 cm.). Tube curved, medium slender, long. Segments nearly equal, connivent; the upper horizontal and narrower than the lower straight segment. Stamen filaments vermilion; anthers darkest violet. Perianth scarlet (87-1) splashed with vermilion-red (87-1v); same marking in throat as Princeps has, but the markings are not so thick. Compared with Princeps, the color is less clear, it is earlier, and the throat markings more decided.

Season — Mid-season; 80 to 83 days.*Spike* — Medium tall (94 cm.), erect, a fair number of blooms (16), not branched. Two spikes often occur per corm.*Habit* — Rather drooping, medium tall, spreading.*Growth* — Vigorous; plant very well furnished with medium broad leaves.*Corms* — Large; cormels, few.**SMOKY VIOLET.** See Evaline.**SNOWBANK***Originator* — Cowee. 1900. Reg. A. G. S., 1914*Group* — Gandavensis*Stock from* Cowee*Synonyms* — Sandersoni or Princess Sandersoni. Much like Alice Carey (Teas) and Snowcrest.

Bloom — Medium size (9 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and sometimes narrower. Stamen filaments pure white; anthers lilac. Perianth pure white, throat penciled and shaded laterally with solferino red (157-1v), with an area of yellow at the side of the solferino red. Compact. Medium good substance. Eight blooms open at one time.

Season — Mid-season; 85 days.*Spike* — Medium tall (85 cm.); erect, a fair number of blooms (15). Two spikes per corm.*Habit* — Erect, medium tall, spreading.*Growth* — Vigorous; plant well furnished with medium broad leaves.*Corms* — Medium size; cormels, few.**SNOWCREST.** See Snowbank and Alice Carey.

S. PARNELL

Originator — Childs. Intro. 1908. Reg.
A. G. S., 1914
Group — Gandavensis
Stock from Childs

Bloom — Medium size (9 cm.). Tube nearly straight, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth rosy pink (118-IV), the lower segments with dashes of deep crimson-carmine. Good substance. The specimens from the two corms in the plots for 1912 were so arranged that the main spikes and laterals were fused so that the blooms apparently came out from all sides of the spike in a whorl. Twenty-nine blooms occurred in the space of 30 centimeters.

Season — Medium late; 111 days.

Spike — Tall (100 cm.), erect, a large number of blooms (29).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size.

SPILLER

Originator — Kelway. Intro. 1909
Group — July Flowering
Stock from Kelway

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal, slightly hooded, and broad, the lower reflexed and narrower. Stamen filaments white, pink tips; anthers lilac. Perianth rosy pink (118-IV), fades lighter at the base. Each upper segment has a white medial line. Lower segments have carmine-purple (156-IV) pencilings on a canary-yellow throat (17-I). Medium good substance.

Season — Mid-season; 80 to 90 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (17 on main, and 10 and 11 on secondaries).

Habit — Erect, medium tall, compact.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

SPLENDOR

Originator — Childs. Intro. 1893. Reg.
A. G. S., 1914
Group — Childsii
Stock from Childs

Bloom — Medium size (7.5 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower straight and broad. Stamen filaments reddish; anthers violet. Perianth Lincoln red (88-I) blotched with strawberry red (110-IV). Excellent substance, good color. Childs calls the color "soft rose, large magenta stain."

Season — Mid-season; 100 days.

Spike — Short (61 cm.), erect, a fair number of blooms (15).

Habit — Erect, dwarf, spreading.

Growth — Medium vigorous; rather poor narrow foliage, perhaps abnormal.

Corms — Medium size; cormels, few.

SPOT

Originator — Childs. Reg. A. G. S.,
1914
Group — Childsii
Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments pink; anthers violet. Perianth lilacy white splashed with Tyrian rose, throat mottled with Tyrian rose, making an attractive lined blotch. Medium substance. Well open. Six blooms open at one time.

Season — 92 to 100 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (12).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

Corms — Medium size; cormels, medium prolific.

SPRING SONG

Originator — Kunderd. Reg. A. G. S., 1914

Group —

Stock from Chamberlain & Gage

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and narrow, the lower reflexed. Stamen filaments white; anthers lilac. Perianth lemon-yellow (21-1) with deep canary-yellow throat marked and feathered with Tyrian rose (155-III). A slight feathering throughout the segments. Bloom compact and of rather good substance. Four to seven blooms open at once.

Season — Mid-August.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (17), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

STERLING. See Minnesota.

STEWART NO. 11. See Evaline.

STEWART NO. 30

Originator — Stewart

Group —

Stock from Stewart

Bloom — Medium size (9 cm.). Tube nearly straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed, also broad. Stamen filaments white; anthers lavender. Perianth a little pinker than yellowish salmon sparsely feathered with deep rose-pink (120-II), throat marked by Tyrian rose (155-IV and lighter). A delicate color.

Season — Mid-season; 100 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (15 on main, 7 on secondary).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad, often drooping leaves.

Corms — Medium large; cormels, few.

STEWART NO. 74

Originator — Stewart. Intro. 1912

Group —

Stock from Stewart

Bloom — Medium size (8-9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper reflexed and broad, the lower narrower and reflexed. Stamen filaments yellowish; anthers violet. Perianth light pure pink (134) splashed with deep rose-pink (120-1) with a lined blotch of crimson-carmine on a pale yellow throat. Bloom neat in shape; the color marbled; flowers show a strong *oppositiflorus* tendency.

Season — Mid-season to medium late; 90 to 100 days.

Spike — Tall (105 cm.), erect, a large number of blooms (17), two branches. Two spikes or three shoots often borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, large, prolific.

STEWART NO. 98*Originator* — Stewart. Intro. 1912*Group* —*Stock from* Stewart

Bloom — Medium size (9 cm.). Tube curved medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and also broad. Stamen filaments reddish; anthers violet. Perianth deep cerise (123-IV) but with a drab tinge, throat lined with carmine-red (113-IV). Seems a dainty color; well open; a rather compact bloom of good substance.

Season — Rather late; 101 to 105 days.

Spike — Medium short (65 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium dwarf, spreading.

Growth — Medium vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

STEWART NO. 99*Originator* — Stewart. Intro. 1912*Group* —*Stock from* Stewart

Bloom — Medium size (9 cm.). Tube straight, slender, very short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrow. Stamen filaments cream; anthers violet. Perianth reddish purple (161-IV) with a lemon-yellow throat, finely and sparsely dotted with reddish purple. Lemon-yellow medial lines in all segments. Would be called a good deep red. A compact bloom of medium good substance. Five blooms open at one time.

Season — Mid-season; 90 to 100 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (12), not branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, medium prolific.

STEWART NO. 102*Originator* — Stewart*Group* —*Stock from* Stewart

Bloom — Large (13 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth scarlet (85-IV) speckled and lined with scarlet, throat amber-white (12-I). Good deep color. Six blooms open at one time.

Season — Mid-season; 90 to 100 days.

Spike — Medium tall (74 cm.), erect, a fair number of blooms (16). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

STEWART NO. 103*Originator* — Stewart. Intro. 1912*Group* —*Stock from* Stewart

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; style white. Perianth scarlet (87-I) fading to crushed strawberry (109-I), medial line and faint streaks of raspberry red (117-IV) on a yellowish pink throat.

Season — Mid-season; 87 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (19).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

STEWART NO. 108*Originator* — Stewart. Intro. 1912*Group* —*Stock from* Stewart

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers red-violet. Perianth purple-garnet (165-1) becoming much lighter at the edges, the amber throat thickly dotted with purple-garnet. Compact bloom of medium substance. Six blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (87 cm.), erect, a fair number of blooms (16). Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large size; cormels, prolific.

STEWART NO. 113*Originator* — Stewart*Group* —*Stock from* Stewart

Bloom — Large (10 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers violet. Perianth deep cerise (123-IV) splashed with deeper cerise, blotch of raspberry red (117-IV) bordered with lemon-yellow. A good pink. Bloom well open and of medium good substance.

Season — Mid-season to late; 104 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium large; cormels, medium prolific.

SULPHUR KING*Originator* — Childs. Intro. 1904. Reg.

A. G. S., 1914

Group — Gandavensis*Stock from* Childs

Bloom — Medium size (9 cm.). Tube curved, medium long, medium slender. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments white; anthers lavender. Perianth creamy white (10-IV), yellow-green blotch on lower segments, edges of segments marked with crimson-carmine. Bloom not very well open.

Season — Early to later August; 102 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (20).

Habit — Erect, medium tall, spreading.

Growth — Medium; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SULPHUR QUEEN*Originator* — Stewart. Intro. 1911.

Reg. A. G. S., 1914

Group —*Stock from* Stewart

Bloom — Small (6 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender. Perianth light canary-yellow (17-1), touch of Tyrian rose deep in the throat, no blotch. A good clear color. Bloom possesses good substance. Four blooms open at once.

Season — Mid-August; 93 to 95 days.

Spike — Medium tall (75 cm.), erect, blooms freely (23 on main, 11 and 9 on secondaries).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, prolific.

SULTANE*Originator* — Krelage*Group* — Lemoinei hybrid*Stock from* Krelage

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream-white; anthers cream-white. Perianth rosy or amber-white blotched with turkey-red (92-IV), the medial line being deeper in color. Attractive colors. A compact bloom of medium substance.

Season — Medium early; 72 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (14), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.



FIG. 67. SULTANE

SUNBEAM*Originator* —*Group* — Primulinus seedling*Stock from* Vaughan

Bloom — Medium size (8 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper hooded and broad, the lower reflexed and narrower. Stamen filaments yellow; anthers yellow with violet sutures. Perianth near light cadmium yellow (23-I), medial line of lower segment ox blood red (94-IV) not blotched, the outer segments faintly feathered. A compact bloom of good substance and good clear color.

Season — Early August; 63 days.

Spike — Tall (110 cm.), erect, graceful, a fair number of blooms (13 on main, 7 on a branch), the branches long.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with good broad leaves.

Corms — Medium large; cormels, prolific.

SUNSET³⁶*Originator* —*Group* —*Stock from* Tracy

Bloom — Large (11-12 cm.). Tube nearly straight, medium slender, rather short. Segments unequal, connivent; the upper horizontal and broad, the lower nearly straight and broad. Stamen filaments dirty white; anthers lavender; style yellow. Perianth nearly madder lake (122-III). Good color, good substance, well open, attractive blotch.

Season — Mid-season to late; 107 days.

Spike — Medium tall (98 cm.), erect, a fair number of blooms (17).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

SUNSHINE³⁷*Originator* — Childs. Cataloged 1904*Group* — Gandavensis*Stock from* Childs

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers cream with lilac sutures. Perianth lemon-yellow (21), throat dashed with Tyrian rose (155-I). Much resembles Victory, Isaac Buchanan, and others. Flowers have a tendency to double. A compact bloom of medium good substance.

Season — Medium late; 111 days.

Spike — Medium tall (95 cm.), erect, a large number of blooms (20), branched.

Habit — Tall, erect, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

SURPRISE³⁸*Originator* — Childs*Group* —*Stock from* Cavers

Bloom — Small (5.5 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers gray. Perianth outer segments geranium red (111-I), inner segments rosy pink (118-I), blotches of carmine-purple (156-IV) cut by medial line of amber-white. Not a good color. Not a very attractive variety. Four blooms open at one time.

Season — Rather late; 103 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (12), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

TACONIC*Originator* — Cowee. Intro. 1900*Group* —*Stock from* Cowee

Synonyms — Perfection; Gertrude. George Betscher said to be a synonym.

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lavender. Perianth rosy pink (118-IV) flecked with Rose Neyron red (119-III-IV), throat lighter in color. On the lower segments is a blotch of strawberry red (110-I) deeper at the medial line, the blotch tipped by a dash of lemon-yellow. A good color, well-arranged spike, medium substance. Seven blooms open at one time.

Season — Mid-season; 86 days.

³⁶ Childs catalogs a pink variety of this name.

³⁷ Kelway originated a variety by this name in 1902.

³⁸ Lemoine and Vilmorin have each originated varieties by this name.

Spike — Tall (100 cm.), erect, blooms freely (17-22). Two spikes per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with prominently veined leaves.

Corms — Medium size; cormels, medium prolific.

TALLEST YELLOW. See El Capitan.

TALLYHO

Originator — Austin

Group —

Stock from Austin

Bloom — Large (10 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and nearly as broad as the upper. Stamen filaments white; anthers lilac. Perianth lilacy white (7-1) blotched with Tyrian rose (155) bordered by a slight shading of yellow. Flowers face various directions; the segments have a tendency to roll; a rather loose bloom of good substance.

Season — Mid-season to late; 108 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (16).

Habit — Erect, medium tall, very spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

TAVISTOCK

Originator — Gage

Group — Princeps hybrid

Stock from Chamberlain & Gage

Bloom — Large (13 cm.). Tube curved, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments —; anthers violet. Perianth scarlet (85-III), throat amber-white (12-I) penciled with crimson-carmine (114-IV). Mr. Gage writes: "The red is not quite so bright, and the light blotch is less conspicuous than in Princeps." Compact bloom of medium good substance. Seven blooms open at one time.

Season — Medium late; 110 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (12), branched.

Habit — Erect, tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

THALIA

Originator — Vilmorin. First cataloged, 1877

Group — Gandavensis

Stock from Childs

Bloom — Medium size (7.5 cm.). Tube almost straight, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers violet. Perianth lilacy white splashed with light Tyrian rose (155-I), Tyrian rose (155-III) pencilings in the throat. Good light color, a compact bloom of good substance.

Season — Mid-season; 85 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

THE GEM

Originator — Christy

Group —

Stock from Christy

Bloom — Small (6 cm.). Tube nearly straight, medium slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broader. Stamen filaments lilacy white; anthers white with lilac suture lines. Perianth

lilac (176-1), a trifle dark to be called lilacy white although the color is often very light, blotched with reddish violet (180-1) terminating in a faint lemon-yellow point or dash. A very dainty color; a round open bloom; attractive, compact, and of good substance.

Season — Christy calls it among the earliest; 88 days on trial grounds.

Spike — Medium tall (70 cm.), erect, slightly curved, a fair number of blooms (18), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

THOMASENA

Originator — Ruff. Reg. A. G. S., 1914

Group —

Stock from Ruff

Bloom — Medium size (8 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth near madder lake (122-11) blotched with near blood red (93-14). A rather loose bloom of medium poor substance.

Season — Mid-season; 81 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (11), branched.

Habit — Erect, though often drooping, medium tall, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium size; cormels, few.

TIGER

Originator — Tracy

Group —

Stock from Tracy

Bloom — Medium size (8 cm.). Tube slightly curved, medium slender, medium long. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and broad. Stamen filaments vermilion; anthers violet. Perianth carthamin red (88-1) blotched with old blood red (103-14) marked with garnet-brown. Not a clear color, but odd.

Season — Mid-season; 93 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (19).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, large.

TITANIC

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Large (14 cm.). Tube straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white, sutures blue. Perianth lilac-purple (160-14) with white medial line in throat and darker areas on each side. A loose bloom of rather good substance. Four blooms open at once.

Season — Mid-season; 105 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

TRIOMPHE DE CAEN

Originator — Barette-Vilmorin. Intro.
1903

Group — Gandavensis

Stock from Dreer

Bloom — Large. Tube straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments lilac tinged; styles greenish. Perianth creamy white, each segment streaked and splashed with pure mauve (181-11).

Season — September 1, 1911.

Spike — Medium tall, crooked, a fair number of blooms.

Habit — Erect, medium dwarf, spreading.

Growth — Medium vigorous; plant well furnished with narrow leaves.

(Described by George J. Burt.)

UMPLEBY NO. 5. See Maize.

UMPLEBY NO. 65

Originator — Umpelby

Group —

Stock from Umpelby

Bloom — Medium size (7.5 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and also broad. Stamen filaments lavender; anthers lavender, sutures violet. Perianth magenta (182-IV) blotched a very deep reddish violet (180-IV) on a lemon-yellow throat. The lower inner segment very small and narrow.

Season — Mid-season to late; 99 days.

Spike — Tall (108 cm.), erect, a fair number of blooms (14 on main, 8 and 6 on secondaries).

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, small, prolific.

UMPLEBY NO. 385. See Mrs. A. C. Beal.

VELVET KING

Originator — Coblenz

Group —

Stock from Crawford (William Mason); Mallory & Brown (William Mason); Babcock (William Mason); Vaughan (Velvet King)

Synonyms — Coblenz No. 312; Emma (Coblenz); Grenadier (Huntington); Sidney Grant (Ruff); William Mason (Crawford); Richmond Red (suggested by Teas).

Bloom — Large (9-10 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and often broader. Stamen filaments red; anthers violet. Perianth cochineal red (83-III), throat marked with crimson-red, the outer edges penciled with drab. Very attractive velvety appearance. Compact bloom of good substance.

Season — Mid-season; 85 days.

Spike — Tall (105 cm.), erect, a large number of blooms (19), branched. Two or more spikes per corm.

Habit — Tall, erect, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

The name given to this variety is chosen because it is the first one used which has not been applied to another variety previously.

VICTORY

Originator — Christy, "probably 1903";

Cowee, 1909. Both claim the honor.

Reg. A. G. S., 1914

Group — Gandavensis

Stock from Christy; Cowee

Bloom — Medium size (9.5 cm.). Tube almost straight, stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers white, sutures violet. Perianth lemon-yellow (21-I) splashed with old rose (144-III) in throat. A clear yellow; well arranged. Six blooms open at one time. Burt notes that the spike opens up well in water.

Season — Mid-season; 89 to 93 days.



FIG. 68. UMPLEBY NO. 65

Spike — Tall (102 cm.), erect, a fair number of blooms (15). Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, fairly prolific.

VIKING

Originator — Krelage

Group —

Stock from Krelage

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, reddish tips; anthers red-violet. Perianth French purple (161-I), throat lemon-yellow stippled and penciled with French purple (161-IV). As the bloom ages, a lilacy tinge develops over the throat and edges of the segments, at the same time the segments have a tendency to roll.

Season — Early; 71 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

VIPER

Originator — Kelway. Intro. 1906

Group — July Flowering

Stock from Kelway

Bloom — Large (11 cm.). Tube curved, medium slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white deepening to dark red; anthers reddish violet. Perianth blood red (93) penciled with deeper ox blood red on a yellowish throat. Very deep color; an extremely well-open, flat bloom.

Season — Mid-season; 80 to 84 days.

Spike — Medium tall (85 cm.), slender, erect, a fair number of blooms (13). Two spikes borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium narrow foliage.

Corms — Medium size; cormels, prolific.

VISTA (Austin)

Originator — Austin

Group —

Stock from Austin

Bloom — Medium size (8 cm.). Tube straight, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and usually broader. Stamen filaments white; anthers lavender. Perianth white tinted with lavender and blotched with heliotrope (188-III). The bud has a ruffled appearance.

Season — Mid-season; 98 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad, drooping leaves.

Corms — Large; cormels, few.

VISTA (Burchett)

Originator — Burchett

Group —

Stock from Burchett

Bloom — Large (10.5 cm.). Tube nearly straight, stout, long. Segments unequal, connivent; the upper horizontal and broad, the lower slightly reflexed and narrower. Stamen filaments white, pink tips; anthers lavender; stigmas red. Perianth vermillion-red (87-II) blotched with canary-yellow on lower segments, throat finely speckled. Bloom somewhat angular; segments slightly ruffled.

Season — Mid-season; 96 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (15). Often two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves, which often have a tendency to droop.

Corms — Large; cormels, prolific.

V. L. S. R.

Originator — Auten

Group —

Stock from Auten

Bloom — Medium to large (11 cm.). Tube curved, medium slender, short. Segments unequal, connivent; the upper and broader segment with the edges reflexed, the lower straight. Stamen filaments light lilac; anthers lilac, sutures dark blue. Perianth coral-red (near 76-IV) with large carmine-red blotches on a yellow-green throat. Attractive color; bloom well open; excellent, decorative variety.

Season — Early to mid-season; 80 days.

Spike — Medium tall (90 cm.), erect, a fair number of blooms (17 on main, 10 on a branch).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, small, few.

WACHUSETTS

Originator — Kunderd. Reg. A. G. S., 1914

Group —

Stock from Chamberlain & Gage

Bloom — Medium size (8.5 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers red-violet. Perianth near salmon (lighter than 72-I), edges of segments deeper, a penciled blotch of deep French purple (161-IV) on the lower lip. Excellent color; compact bloom of excellent substance, velvety texture, and good form. Six blooms open at one time.

Season — Mid-season; 88 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (15), branched. Two spikes frequently borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Very vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

WANDA

Originator — Coblenz

Group —

Stock from Coblenz

Bloom — Medium size (8 cm.). Tube straight, very stout, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and often broader. Stamen filaments pinkish white; anthers blue-violet. Perianth Tyrian rose (155-I) gradually merging to violet-rose toward the throat, medial lines amber-white, large blotch of deep Tyrian rose (155-IV) on a canary-yellow throat. Striking.

Season — Mid-season; 88 to 95 days.

Spike — Very tall (132 cm.), erect, a fair number of blooms (17 on main, 8 on a branch).

Habit — Erect, tall, spreading.

Growth — Very vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

WAUKESHA

Originator — Childs. Cataloged, 1896. Reg. A. G. S., 1914

Group — Childsii

Stock from Childs

Bloom — Medium size (9 cm.). Tube straight, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, red tips; anthers violet. Perianth vermilion-red (87-I)

with a lemon-yellow throat penciled and dotted with French purple (161-iv). each of the inner segments often blotched. A rather loose bloom of medium good substance, well open. Five blooms open at one time.

Season — Mid-season to late; 102 days.

Spike — Tall (115 cm.), erect, a fair number of blooms (13), usually not branched.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant medium well furnished with medium narrow leaves.

Corms — Medium large; cormels, few.

WEISSE DAME. See White Lady and Rochester White.

WHITE AND GOLD

Originator —

Group — Lemoine;

Stock from — Wright

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream-white; anthers white, suture lines lavender. Perianth white, often slightly rose tinted, throat lemon-yellow blotched with deep purple-garnet (165-iv). Compact bloom of good substance. A good variety, but does not compare with La Luna of which type it is.

Season — Early to medium early; 76 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

WHITE CREPE

Originator — Austin

Group —

Stock from Austin

Bloom — Large (10 cm.). Tube straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and broad. Stamen filaments pinkish; anthers white, sutures lavender. Perianth lilacy white (7-1) splashed with rosy magenta (169-1) in outer and lower segments. a deep medial line on lower segments shades lighter on each side to form a blotch. Good substance, segments crinkled like crepe cloth. Three blooms open at one time.

Season — Early; 70 days.

Spike — Tall (105 cm.), erect, a fair number of blooms (16-18), two branches.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, prolific.

WHITE EXCELSIOR. See Reine de l'Anjou.

WHITE KING

Originator — Kunderd. Reg. A. G. S.,

1914

Group — Ruffled

Stock from Kunderd

Bloom — Medium size (8 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers lavender, sutures violet. Perianth amber-white (12-11) blotched with Tyrian rose. This is undoubtedly a seedling of Glory, which it closely resembles in form and color of blotch, but the color is lighter than that of Glory and the blotch is bordered by deeper yellow-green. Excellent form. Five blooms open at one time.

Season — Mid-season; 90 days.

Spike — Medium tall (80 cm.), erect, a large number of blooms (21), two branches.

Two spikes borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with very broad leaves.

Corms — Large; cormels, prolific.

WHITE LADY

Originator — Haage & Schmidt.
Intro. 1897
Group — Gandavensis
Stock from Haage & Schmidt;
 Haentze & Company

Synonyms — Weisse Dame. By many said to be a synonym of Rochester White, also of White Queen.

Bloom — Medium size (9 cm.). Tube curved, medium slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers creamy white. Perianth pure white, with a slight lemon-yellow tinge in lower segments. See Rochester White for comparison with this variety. Under certain conditions a feathering of carmine develops in the segments.

Season — Mid-season, later than Rochester White; 95 to 100 days.

Spike — Medium tall (75 cm.), erect, a fair number of blooms (15).

Habit — Erect, medium tall, spreading.

Growth — Not vigorous; plant well furnished with medium broad bright green leaves.

Corms — Medium large; cormels, few, small.

WHITE QUEEN. See Rochester White and White Lady.

WILD ROSE

Originator — Childs. Reg. A. G. S.,
 1914
Group — Childsii
Stock from Childs

Bloom — Medium size (9 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers violet. Perianth bright rose (128-iv) penciled with Tyrian rose (155) in the throat, segments slightly feathered and suffused with carmine. A good pink; bloom well open; flowers often somewhat bunched on the stem.

Season — Rather late; 113 days.

Spike — Medium tall (70 cm.), erect, a fair number of blooms (11).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

WILHELM STEINHAUSEN

Originator — Pfitzer. *Intro.* before
 1906
Group — Nanceianus
Stock from Pfitzer

Bloom — Medium large (9-10 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments orange; anthers violet. Perianth poppy color (84-i) becoming lighter in the throat, blotched with carmine, segments feathered a slightly deeper poppy color. Rather loose bloom of medium substance, bright color, well open.

Season — Rather early; 74 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (15), branched.

Habit — Erect, medium tall, spreading.

Growth — Medium vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, few.

WILLIAM MASON (Crawford). See Velvet King.

WINIFRED

Originator — Crawford
Group —
Stock from Crawford

Bloom — Small size. Tube straight, slender, long. Segments equal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments

light pink; styles whitish. Perianth poppy red (84) with a cream-white throat and white medial lines, throat often has a faint Tyrian rose (155) streak. Compact spike.

Season —

Spike — Medium tall, erect, free blooming.

Habit — Erect, medium dwarf, spreading.

Growth — Vigorous; plant well furnished with medium narrow leaves.

(Described by George J. Burt.)

WINSOME

Originator — Miller

Group — Childsii

Stock from Childs

Bloom — Large (10 cm.). Tube nearly straight, slender, long. Segments unequal, connivent; the upper horizontal with reflexed edges, the lower reflexed and narrower. Stamen filaments pinkish; anthers red-violet. Perianth lilacy white thickly suffused with violet-rose (154-1), with a large French purple blotch (161-1v). A well-open, round, compact bloom of good substance; color not so clear as it might be; edges of segments slightly ruffled.

Season — Mid-season; 77 days.

Spike — Tall (110 cm.), very erect, a fair number of blooms (16), two branches.

Habit — Very erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium large; cormels, prolific.

WOODRUFF NO. 2-701

Originator — Woodruff

Group —

Stock from Woodruff

Bloom — Medium size (8 cm.). Tube curved, slender, medium stout. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white, pink tips; anthers violet. Perianth lilacy white (7-1), often with a salmony tinge, feathered with lilac-rose, lines of deep lilac-rose on a yellow-green throat. As the bloom ages carmine develops.

Season — Mid-season to late; 101 days.

Spike — Medium tall (87 cm.), erect, a large number of blooms (22 on main, 6 on a branch).

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Large; cormels, few.

WOODRUFF NO. 111

Originator — Woodruff

Group —

Stock from Woodruff

Bloom — Medium size (9 cm.). Tube curved, slender, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments reddish; anthers cream. Perianth amber-white (12-1) often completely suffused with rose, attractively blotched with crimson-red (114-1v) bordered with deep amber-white (12-1v). A rather loose bloom of good substance. Four blooms open at one time.

Season — Early; 78 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

YELLOW BIRD

Originator —

Group —

Stock from Wright

Bloom — Medium size (8 cm.). Tube curved, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower.

Stamen filaments pinkish; anthers yellow. Perianth yellow (really amber-white 12-14) with a broad dash of Tyrian rose in the throat surrounded by lemon-yellow (21-1). Compact bloom of medium good substance.

Season — Mid-season; 85 days.

Spike — Medium tall (80 cm.), erect, a fair number of blooms (17), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

YELLOW BRENCHLEYENSIS. See Hollandia.

YELLOW JACKET. See Madam Butterfly.

YELLOWSTONE

Originator — Hoeg

Group —

Stock from Hoeg

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments yellow; anthers yellowish. Perianth lemon-yellow (21-11) blotched with amaranth red (168-14). Resembles Lemon Drop, but has a larger, broader blotch than the latter, as well as yellow anthers instead of lavender. Yellowstone is the larger bloom. Blotch well defined, excellent substance, well open.

Season — Mid-season; 90 days.

Spike — Medium tall (74 cm.), erect, a fair number of blooms (16), branched.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Medium size; cormels, prolific.

ZEPHYR

Originator — Krelage

Group — Lemoinei hybrid

Stock from Krelage

Bloom — Medium size (8 cm.). Tube nearly straight, stout, short. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments cream; anthers pink. Perianth reddish old rose (142-1), blotched with carmine (116-1) bordered with lemon-yellow. Attractive pink, excellent shape, compact, medium good substance.

Season — Mid-season; 82 days.

Spike — Medium tall (85 cm.), erect, a fair number of blooms (12), branched. Two spikes per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with medium broad leaves.

Corms — Large; cormels, few.

ZEPELIN

Originator — Pfitzer. Intro. 1914

Group — Gandavensis

Stock from Pfitzer

Bloom — Medium size (9 cm.). Tube curved, slender, medium long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments —————; anthers —————. Perianth pure white with a slight tinge of Tyrian rose (155-11) on lower segments. Excellent clear white; blooms face various directions; compact; good substance.

Season — Mid-season; 90 days.

Spike — Tall (100 cm.), erect, a large number of blooms (25), branched. Two spikes borne per corm.

Habit — Erect, tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

ZINGARI

Originator — Hoeg. Reg. A. G. S.,
1915
Group —
Stock from Hoeg

Synonym — Formerly Hoeg No. 96.

Bloom — Medium size (9 cm.). Tube curved, slender, long. Segments unequal, connivent; the upper horizontal and broad, the lower reflexed and narrower. Stamen filaments white; anthers lilac. Perianth Rose Neyron red (119-III), the edges of the segments light Rose Neyron red (119-I), blotched with carmine-purple (156-III) with a dash of lemon-yellow at the tip of the blotch. Compact bloom, good substance, an especially good pink.

Season — Mid-season to late; 110 to 120 days.

Spike — Medium short (60 cm.), erect, a fair number of blooms (11), not branched.

Two spikes often borne per corm.

Habit — Erect, medium tall, spreading.

Growth — Vigorous; plant well furnished with broad leaves.

Corms — Medium size; cormels, few.

VARIETIES REGISTERED BY THE NOMENCLATURE COMMITTEE OF THE AMERICAN GLADIOLUS SOCIETY, BUT NOT DESCRIBED ON THE TRIAL GROUNDS

VARIETY	ORIGINATOR	REGISTERED BY
<i>Registered 1913</i>		
Fireflare	Childs	Childs
Fireking	Childs	Childs
Mrs. F. M. Lupton	Childs	Childs
Rareray	Childs	Childs
Shedowa	Childs	Childs
Southampton	Childs	Childs
<i>Registered 1914</i>		
A. D. Dimmick	Cowee	Cowee
Aline	Childs	Childs
Berkshire	Cowee	Cowee
Berlinia	Cowee	Cowee
Brilliant	Childs	Childs
Burlington	Childs	Childs
Cardinal King	Kunderd	Kunderd
Cherry King	Kunderd	Kunderd
Compacta	Childs	Childs
Cremilde	Cowee	Cowee
Daytona	Cowee	Cowee
Delorah	Childs	Childs
Display	Groff	Cowee
Dominion		Cowee
Duchess	Childs	Childs
Edna	Childs	Childs
Empire		Cowee
Evolution Perfectus	Groff	Cowee
Excelsa	Groff	Cowee
Faust	Cowee	Cowee
Giant Pink	Cowee	Cowee
Governor Hanley	Kunderd	Kunderd
Harmonia	Childs	Childs
Imperial Pink	Childs	Childs
Improved May	Kunderd	Kunderd
Intensity	Cowee	Cowee
Ivory	Kunderd	Kunderd
Keokuk	Childs	Childs
Lavandula	Groff	Cowee
Little Violet	Childs	Childs
London	Groff	Cowee
Magnum	Groff	Cowee
Mary Bancroft	Kunderd	Chamberlain & Gage
Mrs. A. E. Kunderd	Kunderd	Kunderd
Mrs. Malcolm Mackay	Kunderd	Chamberlain & Gage
Morning Star	Childs	Childs
Myrtle	Kunderd	Kunderd
Norma Dee Childs	Childs	Childs
Oddity	Childs	Childs
Old Oxford	Childs	Childs
Papilio Rose	Groff	Cowee
Passport	Groff	Cowee
Peachblow	Groff	Cowee
Rajah	Kunderd	Chamberlain & Gage
Rutland (101 +)	Cowee	Cowee
Siboney	Childs	Childs

VARIETY	ORIGINATOR	REGISTERED BY
<i>Registered 1914</i>		
Silver Star	Groff	Cowee
Snowbird	Groff	Cowee
Sunlight	Childs	Childs
Superb	Childs	Childs
Torchlight	Childs	Childs
Variabilis	Childs	Childs
Vivid	Groff	Cowee
War	Groff	Cowee
White Cloud	Cowee	Cowee
William Falconer	Childs	Childs
Witch	Cowee	Cowee
Wyandauch	Childs	Childs
Youell's Favorite	Kunderd	Kunderd

LARGE-FLOWERED VARIETIES

All these varieties are at least 11 centimeters in diameter.

Adelina	Gleam
Adolphe Jaenicke	Glory (Childs)
Afterglow (Cowee)	Glory (Kunderd)
All-a-glow	Glory of Holland
America	Governor McCormack
Anton Büchner	Grahame-White
Arthur Toms	Great Cardinal
Austin No. 25	Grossfürstin Elisabeth
Austin No. 30	Halley
Austin No. 52	Hauff
Austin No. 56	Helen
Austin No. 57	Henri Lemoine
Austin No. 58	Hiawatha
Barclay	Hoeg No. 11
Brightness	Hoeg No. 17
California	Hoeg No. 30
Candidum	Hoeg No. 31
Captain C. B. Tanner	Hoeg No. 136
Captain W. L. Reeves	Hofgärtner Stapf
Cardisan	Hostes
Chamaeleon	Jumbo
Charles L. Hutchinson	King of Gladioli
Clarice	King Philip
Coblentz No. 003	Lacordaire
Countess of Leicester	Little Blush
Dark Crimson	Littleton
Desdemone	Louis Walter
Dr. Erwin Ackerknecht	Magnate
Dr. Williams	Mastodon
Early Pink	Mayor
Electra	Mehlmann No. 329
Erwin Mayer	Melrose
Estella	Minnehaha
Eugene Sandow	Mrs. A. C. Beal
Euler	Mrs. Francis King
Europa	Mrs. Frank Pendleton
Evaline	Mrs. G. W. Willock
Fair Maid	Mrs. Montague Chamberlain
Fantastic	Mrs. W. E. Fryer
Gallieni	Monster
General Kuroki	Nancy Ray
George Paul	Niagara

Nonpareil	Rose Salmon Extra
Ophir	Rose Wells
Panama	Rosy Spray
Parliament	Royalty
Parody	Ruthony Longside
Peace	St. Louis
Pink Perfection	Scarlet Velvet
Pioneer	Scarsdale
Pocahontas	Scribe
Primulinus Hybrid ($\frac{1}{2}$ Ruffled)	Sir John Cragle
Prince George	Sir William Ingram
Princes	Stewart No. 102
Prometheus	Sunset
Queen of Sheba	Tavistock
Ray	Titanic
Red Lion	Triomphe de Caen
Rosella	Viper
Rose Queen	V. L. S. R.

TALL VARIETIES

All these varieties are at least 105 centimeters tall; the tallest ones are marked with an asterisk (*).

Alois Nerger	Estella
Anton Buchner	Eugene Sandow
*Aprikosa	Flambeau
Arizona	*Flanagan No. 1
Augusta	Florence
Aurora (Childs)	Frau Dora Liebau
Austin No. 56	*Gates' White
Austin No. 57	Gigantic
Austin No. 58	Goethe
A. W. Clifford	Grace Henry
*Bertha Comstock	Groff No. 224
Bessie Rand	Grossfürstin Elisabeth
Blood Spot	Hazel Harvey
Britannia	Helen Tracy
Burchett No. 389	Hostes
California	Improved 1900
Canary Bird	King Humbert
Canicule	King of Gladioli
*Chalice	King Philip
Charlotte Pfitzer	La Candeur
Charmer	La Lorraine
*Chieftain	*Lemon Drop
*Coblentz No. 003	Lucille
Coblentz No. 400	*Lucretia
Countess of Leicester	Lustrous
*Crystal White	Magnate
*Cynosure	Margaret
Dannecker	Meteor
*Dark Crimson	Mildred
Desdemone	*Mrs. Francis King
Deuil de St. Pierre	Mottled America
*Dictum	Muriel
Dr. Erwin Ackerknecht	Negerfürst
Duke of Buccleuch	New America (Mallory & Brown)
Elector	*Niagara
Erica von Barczay	Nonpareil
Erwin Mayer	Oberammergau

Orchid (Woodruff)	Sanguine
Papilio Major	Saratoga
*Peace	Scarlet Letter
Philadelphia	*Scarsdale
Phlegeton	*Scribe
Primulinus Hybrid ($\frac{1}{2}$ Ruffled)	Sir Marcus Samuel
Princess of Orange	Sir Thomas Dewar
Prinzessin Viktoria Luise	Stewart No. 74
Reine de l'Anjou	Stewart No. 103
Renown	Sunbeam
Richard Strauss	Tavistock
Romance	Umpleby No. 65
Rose Red	Velvet King
Rose Wells	Vista (Burchett)
Ruffled Big Face	*Wanda
Ruthony Longside	Waukesha
Salmon Red No. 16	White Crepe
	Winsome

GOOD COMMERCIAL AND EXHIBITION VARIETIES

Seventy-five varieties chosen because of their present popularity or promise of future use.

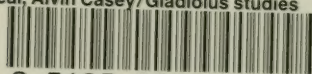
Afterglow (Cowee)	Loveliness
Alaska	May
Alice Carey	Meadowvale
America	Michigan
Aprikosa	Mrs. A. C. Beal
Attraction	Mrs. Francis King
Augusta	Mrs. Frank Pendleton
Austin No. 52	Mrs. Montague Chamberlain
Badenia	Mrs. W. E. Fryer
Baron Joseph Hulot	Mongolian
Bertrex	Myrtle
Blanche	Niagara
Brenchleyensis	Oberammergau
Canary Bird	Panama
Ceres	Paper White
Chicago White	Peace
Coblentz No. 003	Pink Perfection
Dawn (Tracy)	President Taft
Decoration	Primulinus Hybrid ($\frac{1}{2}$ Ruffled)
Elizabeth Kurz	Princes
Empress of India	Prophetesse
Europa	Reine de l'Anjou
General Kuroki	Richard Strauss
George Paul	Rosella
Glory (Kunderd)	Safrano
Golden King	Schwaben
Goldfinder	Scribe
Grace Henry	Senateur Volland
Gräfin Degenfeld	Snowbank
Halley	Sulphur King
Hazel Harvey	Sulphur Queen
Hollandia	Sultane
Independence	Sunset
Jean Dieulafoy	Taconic
Klondyke	Velvet King
La Luna	Victory
Liebesfeuer	War
Lily Lehmann	

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